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ABSTRACT

As part of a project which evaluated online public access catalogs (OPAC's) through analyses of library patrons' needs and perceptions, self-administered questionnaires were completed by library patrons who were OPAC users and non-users at nine academic and public libraries. Focus group interviews were conducted with OPAC users and non-users, as well as technical and public services library staff at six libraries (academic, public, and the Library of Congress). The survey concerned respondents' most recent OPAC search and included questions addressing their attitudes toward OPAC's and traditional library catalogs, and reasons for OPAC non-use. Comments in focus group interviews aided in the interpretation of survey responses and in reaching smaller groups. Research findings focused on five general areas: (1) demographic background of respondents; (2) OPAC searching; (3) transition from the traditional library catalog to the computer catalog; (4) OPAC features; and (5) user assistance for searching OPAC's. This report includes a 33-item reference list, 25 illustrations, 68 tables, and appendices providing user and non-user questionnaire results. (Author/LMM)

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1983 March 31

Final Report to the Council on Library Resources

VOLUME II

of Three Volumes

ONLINE CATALOG USE:
RESULTS OF SURVEYS
AND FOCUS GROUP INTERVIEWS
IN SEVERAL LIBRARIES

by

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Project Manager

IR050388

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by D. J. Sager
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NOTE TO READER

Three volumes comprise the Final Report to the Council on Library Resources, Inc., prepared by the OCLC Office of Research.

Volume I.	Current Utilization of Online Catalogs: Transaction Log Analysis, by John E. Tolle.
Volume II.	Online Catalog Use: Results of Surveys and Focus Group Interviews in Several Libraries, by Karen Markey.
Volume III.	A Comprehensive Study of Online Public Access Catalogs: An Overview and Application of Findings, by Neal K. Kaske and Nancy P. Sanders.

In addition to these volumes, the reader may wish to consult the final reports prepared by the organizations which were also funded by the Council on Library Resources, Inc. in this online public access catalog study. Following is a list of these reports:

Research Libraries Group, Inc. Public online catalogs and research libraries: final report to the Council on Library Resources. Stanford, CA: Research Libraries Group, Inc., 1982 September.

Matthews, Joseph K. A study of six online public access catalogs: a final report submitted to the Council on Library Resources, Inc. Grass Valley, CA: J. Matthews & Associates, Inc.; 1982 November.

University of California, Division of Library Automation and Library Research and Analysis Group. Users look at online catalogs: results of a national survey of users and non-users of online public access catalogs: final report to the Council on Library Resources. Berkeley, CA: University of California; 1982 November 16.

Anderson, Rosemary, Reich, Victoria A.; Wagner, Pamela Roper; Zich, Robert. Library of Congress online public catalog users survey: a report to the Council on Library Resources. Washington, DC: Library of Congress, Office of Planning and Development; 1982 October 29. 17 p.

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The Council on Library Resources, Inc., is acknowledged for its financial support of this particular study of library patrons' needs and perceptions of online catalogs and for its foresight in coordinating the research efforts of five different organizations toward common goals for the benefit of the library and information science community in general. CLR Project Monitor C. Lee Jones played a major role in the guidance and coordination of five organizations' studies of online public access catalogs.

Many individuals have made substantial contributions to the project, the first being Dr. Neal K. Kaske, Director of OCLC's Office of Research and Principal Investigator of this project, who recognized the growing importance of online catalogs and proposed a research project to study them through three different but complementary methodologies. Charles R. Hildreth, Research Scientist in the Office of Research, assisted Dr. Kaske in the design of the survey instrument when this research project was still evolving. In this design phase, the advice of many consultants, including Professor Robert E. Burnkrant of The Ohio State University and Professor Pauline A. Cochrane of Syracuse University, was helpful.

There were many library staff members at pretest and survey libraries who made this research project possible. James S. McPhee of Syracuse University Libraries supervised the administration of over 1600 questionnaires in a three-week period while arranging for focus group interviews. Susan Logan of The Ohio State University Libraries also supervised an intense and fruitful questionnaire administration and made arrangements for focus group interviews. William J. Crowe completed the questionnaire administration at Ohio State when Susan Logan was unexpectedly sidelined and recuperating. Diane Ingersoll of Iowa City Public Library coordinated both questionnaire administration and arrangements for focus group interviews. Data collection at Dallas Public Library's Central Library and six of its eighteen branches was carried out by Randy Shank, Joe Bearden, and Penny Washington; Joe Bearden also made arrangements for focus group interviews.

The efforts of library staff at five libraries where OCLC was the object of study are acknowledged, particularly the supervision of data collection by Helen P. Livingston of the University of Akron, Katherine Foster of Ohio University, Catherine Mead of the State Library of Ohio, Jerry W. Breeze of the University of Texas at Austin, and Abby Kratz of the University of Texas at Dallas. Focus group interview arrangements were made by Robert Zich, Rosemary Anderson, Victoria A. Reich, and Pamela Roper Wagner at the Library of Congress, and by Dale Carrison and Sandra Ready at Mankato State University.

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Johnson, Librarian for Systems Development are acknowledged for their cooperation. Data collection at Case Western Reserve University was chiefly supervised by Michael Kukura and Esther Greenberg. Many times the OCLC project team called upon library staff at participating libraries to provide additional information, help in the interpretation of an interesting finding. or review partial drafts. The team was always pleased by the helpfulness and enthusiasm that accompanied requests.

The project staffs at the other four participating organizations provided assistance at all phases of the project. Appreciation is expressed to Joseph R. Matthews, J. Matthews & Associates, Inc.; Robert Zich and Rosemary Anderson, Office of Planning and Development, Library of Congress; Douglas Ferguson, The Research Libraries Group, Inc.; Edwin B. Brownrigg, Gary S. Lawrence, Vicki Graham, Ray Larson, and Betsy Llosa-Sandor of the University of California/Division of Library Automation. Gary Lawrence did a superb job coordinating the data analysis and reporting phases of the survey.

The assistance provided by OCLC staff throughout the project was very much appreciated. Interviewers assisting in the focus group interviews were Professor Cochrane, Patricia Hartsel, and Dr. Kaske. Ralph Gott performed additional statistical analyses with the survey data. Extensive editorial assistance was provided by Leslie B. Pearse and Adrienne E. Young. Typing was provided by Cindy Heffelfinger, Karen McNerlin, Bobbi Kessler, Carol Lauber, and Barbara Luschen. Numerous colleagues provided critical enlightenment and were themselves sources of information, particularly Christine L. Borgman, Daniel Ferrer, Charles R. Hildreth, Neal K. Kaske, William H. Mischo, and John E. Tolle. Dr. Paul B. Kantor provided insight into problems with the statistical analysis of survey data. Professor Cochrane provided support in the design of instruments for the survey and interviews, and in the data analysis and interpretation phases of the project; her review of early drafts was especially helpful.

NOTES ABOUT THE AUTHOR

Karen Markey is a Research Scientist in OCLC's Office of Research. She has conducted research in online database coverage, subject access to augmented MARC records, and the description of subject matter in works of art. She recently completed a study of the process of subject searching in the library catalog whose findings complement the findings of the present study on online public access catalogs. She received her B.A. from The Johns Hopkins University and her M.L.S. and Ph.D. from the School of Information Studies at Syracuse University.

ABSTRACT

This report describes the results of the second part of a project funded by the Council on Library Resources to study online public access catalogs (OPACs) using survey research and focus group interviews. The major objective of the project was to evaluate online public access catalogs through an analysis of library patrons' needs and perceptions. Self-administered questionnaires were completed by library patrons who were OPAC users and nonusers at nine libraries where five different OPACs were the object of study. Focus group interviews were conducted with library patrons who were OPAC users and nonusers, and technical services and public services library staff at six libraries where seven OPACs were the object of study. Survey and interview questions queried library patrons and staff about their most recent OPAC search, attitudes toward OPACs and traditional library catalogs, reasons for OPAC nonuse, features of computer catalogs, types of user assistance needed when searching the OPAC, and demographic background of respondents. Comments in focus group interviews were especially valuable for the interpretation of survey responses and for reaching patron groups that were small in comparison to the total population. Research findings were described by five general areas: (1) demographic background of surveyed users and nonusers; (2) searching in the OPAC; (3) transition from the traditional library catalog to the computer catalog; (4) features of OPACs including features with which users had favorable experiences and features with which users had unfavorable experiences; and (5) user assistance for searching OPACs. The evaluation of existing online catalogs is necessary to ensure that their present and future development leads to greater acceptance by library patrons and staff.

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SUMMARY OF THE REPORT

A. PROJECT OBJECTIVE

This report covers the analysis of questionnaires and focus group interviews at several libraries using online public access catalogs. The objective of the research project was to evaluate online public access catalogs (OPACs) through an analysis of patrons' needs and perceptions. The evaluation of existing OPACs is necessary to ensure that present and future development of such catalogs will lead to greater acceptance by library patrons.

B. METHODOLOGY

Self-administered questionnaires for users and nonusers of OPACs were constructed by a committee composed of the principals whose studies of OPACs were sponsored by the Council on Library Resources. The survey instruments were pretested formally and informally prior to the actual study. In spring 1982, 29 institutions took part in the administration of user and nonuser questionnaires. OCLC was responsible for questionnaire administration at the following 10 institutions:

1. University of Akron
2. Case Western Reserve University
3. Dallas Public Library
4. Iowa City Public Library
5. The Ohio State University
6. Ohio University
7. State Library of Ohio
8. Syracuse University
9. University of Texas at Austin
10. University of Texas at Dallas

The user questionnaire contained 59 questions, which were organized into the following four parts and subject areas: (1) most recent OPAC search; (2) experiences with OPAC features and services; (3) improvements to the OPAC; and (4) demographic information about the OPAC user. This questionnaire was distributed to "users" of OPACs who were defined as individuals 14 years old or older observed using the OPAC, i.e., sitting or standing in front of a terminal and touching keys or the screen, looking at a display device, etc.

The nonuser questionnaire contained 15 questions, which were organized into the following parts: (1) expectations of the OPAC; and (2) demographic information about the OPAC nonuser. This questionnaire was distributed to "nonusers" of OPACs who were defined as individuals 14 years old or over who responded negatively to the data collector's question asking whether they had ever used the library system's OPAC.

The time blocks when users and nonusers were recruited to complete a questionnaire were randomly selected. The sampling plan was not the same from library to library but took into account each institution's calendar, hours, and special events. Data collection at Case Western Reserve University did not take place until fall 1982 and winter 1983; the results of Case Western's questionnaire administration are given in Appendix D. At eight of nine surveyed libraries, the acceptance rate of users exceeded 60%. The acceptance rate of nonusers equaled or exceeded 65% at all nine surveyed libraries.

Focus group interviews were used to collect information on library staff and patron needs and perceptions of online catalogs. Four groups of participants were sought for focus group interviews: (1) library patron users of OPACs; (2) library patron nonusers of OPACs; (3) reference services library staff; and (4) technical services library staff. Focus group interviews were conducted at the following six institutions:

1. Dallas Public Library
2. Iowa City Public Library
3. Library of Congress
4. Mankato State University
5. The Ohio State University
6. Syracuse University

The analysis of questionnaire data was performed at UC/DLA using SPSS to produce descriptive and nonparametric statistics. Content analysis of discussions in focus group interviews was used to construct a descriptive framework in which participants' remarks were categorized into four general areas: (1) existing system; (2) card to computer catalog transition; (3) database; and (4) user assistance (see Table 7). Comments of interview participants were used in this report to provide insight into and assistance in interpreting quantitative questionnaire results. Focus group interviews were also an important source of comments from groups of OPAC users and nonusers who were not surveyed because they did not match the definition of a user or a nonuser, and from members of relatively small but vocal groups, e.g., university faculty, older adults, etc., whose survey responses were overshadowed because they were represented in the population in relatively small groups in comparison with the majority of respondents.

C. DEMOGRAPHIC BACKGROUND OF SURVEYED USERS AND NONUSERS

1. Frequency of Library Visits by Library Patrons

- Differences in frequency of library visits were found between library patrons and the types of libraries they visited and between OPAC users and nonusers. Library patrons at public libraries and federal and state libraries visited the library less often than patrons at academic libraries (see Table 9).

- Library patrons at Syracuse, Ohio State, and OCLC-system libraries (i.e., University of Akron, Ohio University, State Library of Ohio, University of Texas at Austin, and University of Texas at Dallas) visited the library on a daily or weekly basis. Library patrons at the public libraries of Iowa City and Dallas visited the library on a weekly or monthly basis. OPAC nonusers at these five surveyed sites visited the library less frequently than users (see Table 10).

2. Frequency of OPAC Use

- Differences in frequency of OPAC use were found between patrons and the types of libraries they visited. Library patrons at ARL-member, academic, and community college libraries used the OPAC less frequently than public library patrons. A large percentage of first-time OPAC users were found at federal and state libraries (see Table 11).
- Library patrons at the public libraries of Dallas and Iowa City used the OPAC on every or almost every library visit. Patrons at Syracuse and Ohio State used the OPAC on almost every library visit or occasionally. OCLC users consulted the system less frequently than OPAC users at the four other surveyed libraries. Most likely, OCLC users consulted the system only when they could not find an item in the library's local catalog (see Table 12).

3. Age of Surveyed Respondents

- Differences in ages of surveyed respondents were found between library patrons and the types of libraries in which they were surveyed. Most surveyed users and nonusers represented the 15 to 19, 20 to 24, and 25 to 34 age groups.
- The ages of OPAC users and nonusers were in similar proportions in each age group, except for the high percentage of older adult public library nonusers (15%) in comparison with the corresponding low percentage of older adult public library users (4%), and the high percentage of young adult public library users (27%) in comparison with the corresponding low percentage of young adult public library nonusers (12%). Older adults in focus group interviews brought to light their intimidation by the OPAC and their perception of youngsters' flexiblity, eagerness, and receptivity toward the OPAC.

4. Sex and OPAC Use-Nonuse

- With respect to the CLR-aggregate data (i.e., data collected at the 29 participating libraries), a significant relationship was found between sex and OPAC use-nonuse. In general, a greater percentage of users was male (see Table 15).
- With respect to the five OCLC-surveyed sites, a significant relationship was found between sex and OPAC use-nonuse at only Dallas Public Library. Statistics from Syracuse, Ohio State, Dallas Public, and OCLC-system libraries indicated that there were more female than male first-time users (see Table 16). Should such a trend toward

female first-time use continue, percentages of male and female users might equalize in the near future.

5. Academic Background of Survey Respondents

- Percentages for the highest grade completed by survey respondents showed little difference between users and nonusers at individual libraries or types of libraries. The majority of academic library patrons were in college; public library and federal and state library patrons were college graduates (see Table 17).

- With respect to the five OCLC-surveyed sites, the highest grade completed by survey respondents reflected findings in the aggregate grouping by type of library. The majority of library patrons at the academic libraries of Syracuse and Ohio State were undergraduates. At the public libraries of Dallas and Iowa City, the largest proportion of library patrons were college graduates (see Table 18).

D. SEARCHING THE ONLINE PUBLIC ACCESS CATALOG

1. Purpose of OPAC Searches

- Differences were found in the analysis of aggregate data between the purposes of users' OPAC searches and the type of library at which they had performed their searches. At ARL-member, academic, and community college libraries, OPAC users' purposes were class-related. Personal interest was the chief purpose of public library searchers. OPAC users at federal and state libraries searched the OPAC for a variety of purposes (see Table 21).

- Individual libraries' statistics on OPAC users' search purposes reflected findings of the aggregate data except the purposes of OCLC-system users of which a large percentage was advanced research (see Table 22).

- The majority of Syracuse, Ohio State, and OCLC-system users who were undergraduates were involved in searches for class-related purposes. A large percentage of graduate student users of the Syracuse and Ohio State OPACs were also performing searches for class-related purposes. Faculty members' search purposes were related to their jobs or research (see Table 23).

- The main focus of OPAC users' academic work was course work, except at OCLC-system libraries, where both research and course work were the main foci (see Table 24).

2. Type of Information Entered into the Computer Catalog

- Multiple responses to questions about the type of information users brought to and entered into the computer catalog and the type of materials they were trying to find confounded the results. Rather than risking erroneous interpretations from such confounded data, two methods are recommended for collecting more reliable data in future studies: (1) online questionnaire administration after the completion of an OPAC search that can be captured in a transaction log; and (2) "offline" questionnaire administration after OPAC searchers' expressed thoughts are captured through protocol analysis.

3. Finding the Object of the OPAC Search

- Fewer than 20% of OPAC searchers did not find any of the desired material. The majority of OPAC users found at least "some" of the items for which they were looking (see Table 26).

- More very infrequent and first-time users found nothing as a result of their search than frequent OPAC users (see Table 27). This finding: (1) suggests that lack of proficiency in the use of OPACs may adversely affect retrievals; (2) supports the requirement that OPACs should contain features that contribute to the ease of relearning the system; and (3) suggests that OPACs contain features that assist online searchers with alternate search strategies when their searches retrieve nothing.

- In general, one of every two OPAC searchers encountered other things of interest in the course of their online search (see Table 28). Finding other things of interest was related to personal interest searches, a purpose characteristic of public library OPAC searchers (see Table 29).

4. Use of the Library's Traditional Catalog

- Use of the library's traditional catalog by library patrons was connected to: (1) the capability of the online system, e.g., union catalog, local library catalog, etc.; (2) the purpose of the patron's search; (3) the comprehensiveness of the online system's coverage with respect to the traditional catalog's coverage; and (4) combinations thereof. Should any of the first three factors change, library patrons' use of the traditional catalog would probably be affected.

E. TRANSITION FROM TRADITIONAL LIBRARY CATALOGS TO OPACS

1. General Attitudes toward OPACs

- Over 80% of surveyed users and nonusers had favorable attitudes toward the OPAC. Nonusers were less exuberant than users in their expression of favorability (see Table 31). Comparable but different studies of OPACs also reported favorable responses by users and/or nonusers about OPACs.

- At this early stage in the development of computer catalogs, few users have had the opportunity to use more than one OPAC. Only about 25% of surveyed library patrons were frequent users of other computer systems (see Table 68). Favorable attitudes of library patrons might change in time as they have more familiarity and practice with other OPACs and computer systems and have greater powers of discrimination.

2. Favorable Attitudes toward the OPAC

- The four following reasons for favorable attitudes toward the OPAC were expressed in focus group interviews:

  a. Searching the computer catalog is fun. Especially among youngsters, young adults, and university students, searching the OPAC was more fun and less boring than searching the traditional library catalog.

  b. Searching the OPAC saves time. The computer catalog saves time in a number of ways: (1) ability to view the same information that another searcher is viewing; (2) instantaneous response of the OPAC in comparison to flipping catalog cards; (3) ability to remain in one place and search many different access points; (4) ability to access the library's catalog from remote locations, e.g., campus terminals, home terminals, etc.; (5) availability of circulation information.

  c. The OPAC provides new services. Examples of these new services are printouts of retrieved citations, ability to search the catalogs of other branch or campus libraries, and mail delivery of books to home or office.

  d. The OPAC provides new features. Examples of these new features are author/title search, limit command, and component word searching of subject-rich MARC fields.

- The three following variables were related to OPAC users' attitudes in analysis of survey questions:

  a. Finding other things of interest during the OPAC search was related to OPAC users' general attitudes toward the OPAC (see Table 32). For example, the percentage of users who did not find other things of interest and were unfavorable toward the OPAC was over three times greater than the percentage of users who were unfavorable toward the OPAC and did find other things of interest.

  b. Users' attitudes toward the library's other catalogs were related to their general attitudes toward the OPAC (see Table 33). For example, OPAC users who felt that the OPAC was worse than the library's traditional catalog were also unfavorable toward the OPAC.

  c. Frequency of OPAC use was related to users' general attitudes toward the OPAC (see Table 34). For example, only 6% of frequent users were unfavorable toward the OPAC, whereas 21% of infrequent users were unfavorable.

3. Unfavorable Attitudes toward the OPAC

- The three primary reasons why surveyed nonusers had not yet used the OPAC were: (1) not having taken training sessions on how to use it; (2) not having time to learn how to use it; and (3) no need to use any library catalog (see Table 35). Two reasons for nonuse that emerged in focus group interviews, i.e., "card catalog is easier to use" and "dislike of computers", were not highly ranked among surveyed nonusers but were reasons selected by nonusers who were very unlikely to use the OPAC in the future (see Table 36).

- The five following reasons for unfavorable attitudes toward the OPAC were expressed in focus group interviews:

  a. Library patrons were familiar with and trusted the traditional library catalog. Library staff could help build patrons' trust in the OPAC by making clear to patrons: (1) why the library has chosen to convert to the OPAC; (2) comparison of the traditional catalog's contents with the computer catalog's contents; (3) types of assistance available for learning how to use the OPAC; and (4) benefits of the OPAC. Such information is important to disseminate before and after the introduction of the OPAC.

  b. Library patrons feared computers or mechanical devices in general. Their fear may dissipate as the use of computers in everyday living becomes commonplace. In the meantime, a variety of online and offline user aids is suggested.

  c. Library patrons were reluctant to learn how to use the OPAC. Some of these patrons were merely "burned out" on learning, such as university students who viewed the OPAC as just one more aspect of university life that had to be learned and mastered. Other patrons, especially older adults and faculty members, were embarrassed about their lack of knowledge, which intensified when they compared their skills with those of youngsters or undergraduates. "Burned out" patrons will probably learn how to use the OPAC at the last minute before an assignment's deadline; consequently, workshops or individualized instruction must always be available, not just at fall orientation or in the first few months of the OPAC's residence in the library. Self-conscious or embarrassed patrons will probably have to be approached on an individual basis by library staff. Peer teaching by fellow faculty members was also suggested as a means of assisting reluctant faculty members.

- Statistical relationships were found between nonusers' attitudes toward the computer catalog and: (1) perceived length of time needed to learn to use the OPAC (see Table 37); (2) perceived difficulty of learning to use the OPAC (see Table 38); and (3) likelihood of future OPAC use (see Table 39).

4. Satisfaction with the Most Recent OPAC Search

- Over 75% of users overall and at individual libraries were satisfied with the results of their most recent OPAC search (see Table 40).

- Searchers who discovered other things of interest during their most recent search expressed greater degrees of satisfaction than those who had not discovered other things of interest (see Table 41).

- Satisfaction with the most recent OPAC search was related to OPAC users' comparisons of the OPAC with the library's other catalogs (see Table 42). OPAC users who were not satisfied with their search generally felt that the OPAC was worse than the library's other catalogs.

5. Changes in OPAC Users' Search Habits

- The introduction of the OPAC to the library resulted in the following changes to the search habits of OPAC users, which were voiced by library patrons and staff in focus group interviews:

  a. Library patrons enjoyed searching the computer catalog more than the traditional library catalog.

  b. Library patrons took advantage of new features and services of OPACs.

  c. Library patrons noted that the ability to remain in one place and check multiple access points increased their perseverance.

- Library patrons who noted that their search habits had not changed were performing bookshelf browsing searches in the computer catalog.

F. Features of Online Public Access Catalogs

1. Review of Features in OPACs

- OPAC features' were reviewed in system-by-system checklists for operational control, search formulation control, output control, and user assistance (see Tables 45-49).

- When checklists of OPAC features were matched with the user questionnaire, it was demonstrated that: (1) there were features enumerated in the checklists that none of the systems in the study offered; (2) there were features in the systems studied that were not evaluated because the questionnaire did not contain questions about those features; (3) there was not a one-to-one correspondence between survey questions and OPAC features enumerated in checklists; and (4) survey questions about users' experiences with features were closed-ended.

- Focus group interviews provided a rich source for learning the nature of users' problems with OPAC features, helping to interpret survey results with regard to system features in general and disclosing users' problems with OPAC features that were not tested by the questionnaire.

2. Users' Favorable Experiences With OPAC Features (See Table 50)

- Search formulation control features

   a. Users' reported favorable experiences in connection with access points for known-item searching. The entry and amount of known-item information differed widely from system to system; however, subject access points were not listed among features with which users had favorable experiences, even though entry techniques were similar to known-item entry techniques. Thus, OPAC users' favorable experiences about known-item access points might be attributed to the concreteness of the task of finding known-items in comparison to the increased amount of mental effort involved in the task of subject searching.

   b. Focus group participants noted that the virtue of the author/title access point was its ability to pinpoint the needed item with a minimum of screen manipulations.

   c. Ohio State OPAC users cited the helpfulness of the shelf position search (SPS) to complete subject searches and/or browse the shelflist.

- Output Control Features

   a. Bibliographic and circulation record displays of the five systems studied in the survey were featured in a discussion of the ease of understanding single bibliographic record displays (see Figures 1-6). Individual lines of text in single record displays of the four systems with which users noted favorable experiences were prefaced by alphabetic and/or numeric labels. The use of such labels may set off lines of text to indicate to searchers differences in meaning from one labeled line of text to another.

   b. Circulation and bibliographic record displays were the chief locations of abbreviations, codes, undefined messages, jargon, etc. Focus group participants noted difficulty understanding record displays with such information. Displays and command names should be reviewed by library staff and potential OPAC users, or be coded in such a way that would easily accommodate changes after the introduction of the OPAC to the library (see Figure 6).

   c. Recommendations for the placement of call numbers in bibliographic record displays are: (1) placement along the outer edge of text; (2) far from the neighborhood of other numbers and characters that could be confused with call numbers; (3) labeling call numbers with a label understandable to patrons; and (4) explanations for and examples of circulation and bibliographic record displays in offline and online user aids (see Figures 10-12).

d. Iowa City Public's OPAC users favorably cited the memorability of the order of entering commands or the memorability of a particular command in the course of the search. The OPAC's horizontal array of touch commands might have helped patrons to remember the correct sequence of commands or the correct command (see Figure 13). Yet, Iowa City patrons mentioned the need for more directive means of informing them of the next and best step in the ongoing search.

- Online and Offline User Assistance

a. Syracuse University and Iowa City Public OPAC survey respondents cited their system's online user assistance. The Syracuse OPAC's directive prompts following the report of the number of retrievals helped searchers in the display of citations (see Figure 14). Help screens were available at all times in the Iowa City Public OPAC, but staff realized that users were embarrassed to be seen using them. The library's experience with changing the initial instructions after finding out patrons' reactions demonstrated the necessity for allowing individual libraries to alter screen displays, help messages, command names, field names, etc., after implementation of the computer catalog (see Figure 15).

b. OPAC users were very favorable toward librarian assistance. OCLC users and OPAC users at Ohio State noted the helpfulness of brochures about OPAC use, and Ohio State users noted that brochures were always available. Ohio State was the only library surveyed where there were always free terminals available.

3. Users' Unfavorable Experiences with OPAC Features (See Table 53)

- Subject access

a. Analysis of focus group remarks and questionnaire responses showed that OPAC users experienced difficulty when performing subject searches. Reasons underlying this difficulty were: (1) patrons' inability to match their input term(s) with the OPAC's controlled vocabulary; (2) the burden on the OPAC user of conjuring up broader or narrower terms; and (3) problems consulting the printed volumes of LCSH during the online search.

b. The following six online user aids were discussed and examples provided that were intended to help patrons select searching vocabulary, browse the OPAC, and make satisfactory relevance assessments about displayed items:

1. Alphabetical displays of subject headings (see Figure 16). Focus group participants pointed out that this feature has been present in searching the traditional library catalog.

2. Keyword-in-context subject heading displays (see Figure 17). Such displays would help searchers match their entry vocabulary with the catalog's controlled vocabulary regardless of the position of the matched term(s) in a precoordinated (or bound) subject heading.

3. Online displays of related subject headings (see Figure 18 and Table 54). Displays of related subject headings were the top-ranked additional OPAC feature in the survey.

4. Augmented subject access to bibliographic records. Augmented subject access to records was ranked second in the list of additional OPAC features. Of Atherton's four benefits derived from a study of augmenting bibliographic records "the ability to answer some queries impossible using today's catalog information" was what focus group participants had in mind when they requested subject augmentation to bibliographic records (Atherton, 1978, p. iv).

5. Automatic linking of input free text terms to the OPAC's controlled vocabulary. This is already operational in the CITE and PaperChase OPACs and helps searchers to improve the recall of subject searches.

6. Inclusion of subject headings in bibliographic record displays (see Figure 19). This would be the alternative to mechanizing the procedure in 5. above.

- Call Number or Shelflist Searching

  a. OPAC users had unfavorable experiences with the call number or shelflist displays in the Iowa City Public OPAC. Since such displays were probably used to find out if library materials were available in the library, the call number search could be simplified to reduce the number of steps (or touch commands) that are necessary to check library materials' circulation status (see Figures 20 and 21).

  b. Ohio State users reported favorable experiences with shelflist searches and displays. Since bibliographic records entered into the Ohio State OPAC prior to June 1978 lacked subject headings, searchers used the shelf position search to improve the recall of OPAC subject searches by using the results of a subject heading search to identify a fruitful call number area. The shelf position search also allowed searchers to "browse the stacks" by perusing titles of books in the area of the input call number.

  c. Focus group interview participants at all six libraries recognized the usefulness of browsing books in the neighborhood of a relevant book. Three suggestions are given to take advantage of the classifed arrangement of books:

1. Automatic feedback routine that uses class number areas of relevant retrievals to find additional items. This routine has already been implemented in CITE, a prototype OPAC at the National Library of Medicine.

2. Online Subject Guide. This reports books' class number areas, as well as the number of books found in each class number area under the subject heading of interest (see Figure 22).

3. Display of classification captions enumerated in classification schedules to help searchers find books on specific, coordinate, or general topics (see Figure 23). The need to browse subjects in context was also expressed by survey respondents when they ranked "list of related words" first among additional OPAC features.

- Reducing or Increasing Search Output

a. Questionnaire results concerning unfavorable features pointed out OPAC users' problems with reducing or increasing search output. Analysis of transaction logs (see Volume I) and focus group interviews showed that reducing or increasing search output is a widespread and prevalent problem.

b. The following recommendations are made to help searchers reduce the number of retrievals in highly posted known-item searches:

1. Suggestive or directive prompts to inform searchers to try the search using the author/title approach. In section 6.1.1, searchers championed the author/title approach as a means of pinpointing the needed item.

2. Suggestive or directive prompts to inform searchers to limit results by various criteria. Analysis of transaction data (see Volume I) showed that few searchers used limit commands, which suggests that they need to be prompted to use them.

c. The following are recommendations regarding assistance to OPAC searchers whose known-item searches result in no retrievals:

1. If the author or title approach results in no retrievals, the system produces suggestive or directive prompts informing the user to retry the search using a title or author approach, respectively.

2. When an author/title search results in no retrievals, the system suggests or directs the user to enter only title or only author information.

3. Author/title keyword searches. The Syracuse OPAC already allows author/title keyword searches. Searchers need to be prompted when to enter them.

4. Automatic truncation of title word(s) and/or author names. CITE, a prototype OPAC of the National Library of Medicine, performs automatic stemming routines on users' input words and names.

5. Spelling correction routines. Spelling correction routines have been implemented in CITE at the National Library of Medicine and BACS at the University of Washington School of Medicine.

6. Name authority control capability. The University of California's system is an example of an OPAC with name authority control.

d. Recommendations were given to help searchers reduce the output of highly posted subject searches:

1. Suggestive prompts informing users that results can be reduced by the entry of Boolean operators and additional searchable information, limit criteria, or subject subdivisions, etc.

2. Display of related word lists to help users find more specific or additional Boolean operators. The relatively infrequent use of advanced features such as Boolean operators (see Volume I) indicates the need for prompts.

3. Online Subject Guide consisting of displays enumerating the class number areas of books, as well as the number of books found in each class number area under the subject heading of interest. Searchers, especially bookshelf browsers, would be directed to the areas of the bookshelves where the majority of books under that topic are located (see Figure 22).

e. Recommendations for assisting OPAC users whose subject searches result in no retrievals are:

1. Cross-references online.

2. Related word lists to lead users to more general term(s).

3. Automatic truncation of users' input subject term(s).

4. Augmented subject access to bibliographic records.

5. Automatic linking of input free text terms to the OPAC's controlled vocabulary.

- Output Control Features

a. Difficulties with output control features occurred primarily in connection with entering commands. Traditional library catalog searching required a combination of mental exercise and physical skills. In OPAC searching, physical skills are "logicalized" into a series of command names or touches. OPAC searchers must always keep in mind: (1) the correct command name; (2) correct command entry procedures; (3) correct information about the display, e.g., field labels, next record number to be displayed; and (4) appropriate times to enter commands.

b. Comments in focus group interviews about command names, entry procedures, and the logical sequence of commands in online searches resulted in the following factors that must be considered in the design of output control features:

   1. Mnemonic command names or abbreviations.

   2. Command names or abbreviations that are easily understandable in view of the operation they perform.

   3. Command entry procedures that are easy to remember.

   4. Command entry procedures that are consistent from one command to the next.

   5. Suggestive or directive prompts that inform users of or guide them through possible actions.

c. Problems with response time were usually specific to individual systems. Focus group interview participants were not particularly bothered by slow response times; when they anticipated slow response times, they sought ways to beat them.

d. The following output control features and the guidelines for them were drawn from an analysis and understanding of focus group participants' problems with specific OPACs' features:

   1. Display forward (of single or multiple bibliographic records).

   2. Display backward (of single or multiple bibliographic records).

   3. Report of the number of retrieved citations or screens of titles resulting from the input of an access point.

   4. Report of the number of screens required to display a full bibliographic record and/or circulation information in the first screen of the record, which:

      a. Includes a very visible and understandable directive prompt at the end of the display to guide users to successive screens of the record, or

      b. In the case of multiple, i.e., 5 or more, screens for a displayed record, includes an informative and understandable directory to the contents of multiple screens.

5. Use of messages regarding circulation status that the library can live up to.

6. Display of output ordered by a characteristic that is easily and quickly understood by users.

7. Inclusion of subject headings in brief or intermediate level displays of citations retrieved in subject searches.

- Operational and Search Formulation Control Features

  a. Users' difficulty interrupting the display of information and response time associated with displaying the next bibliographic record from a screen of records resulted in the description of a "report" key that would allow users to obtain a report of the system's progress thus far.

  b. Users' unfavorable experiences with truncation led to the two following recommendations:

     1. Automatic truncation of users' input access points when few or no records are retrieved.

     2. Natural language input of access points and system construction of derived search keys.

- Offline User Assistance

  a. At all five libraries surveyed, users reported difficulty knowing what was included in the OPAC. Following are recommendations for informing patrons about the coverage and contents of the OPAC:

     1. Workshops, group or individualized instruction, and training materials used in workshops or instruction sessions must include a discussion of the coverage and contents of the library's OPAC.

     2. Permanent printed guides or brochures about OPAC use to which searchers can refer when performing online searches at the OPAC, laminated and/or pasted to the terminal or terminal table, posted on walls, etc.

     3. Free printed guides or brochures about OPAC use that are available for the taking.

     4. Permanent signs posted near the library's traditional catalog must refer patrons to the OPAC to ensure that the results of their searches are up-to-date and comprehensive. A sign could say, "Check the computer catalog for books, government documents, magazines, and newspapers published after 1968."

5. Online message at the end of OPAC search could inform users that there are other resources to check; for example, an online message might say, "Check the card catalog for books, government documents, magazines, and newspapers published before 1968."

b. Excessive queuing at computer catalog terminals resulted in comments from focus group participants about the privacy of their online searches. The formation of a single queue where users stand to wait for the next available terminal is recommended to segregate patrons actually performing online searches from those waiting to perform them.

c. Focus group interviews revealed sets of patrons who refused to obtain a librarian's assistance; wanted to teach themselves how to use devices on their own time and at their own convenience; or felt embarrassed or self-conscious about referring to a brochure or manual during their online search when other library patrons were around. Such patrons would benefit from available pamphlets, brochures, or instruction sheets that they could take with them and study at their own convenience. The implementation of a number of methods of teaching patrons how to use the OPAC is very important to accommodate the variety of personal learning styles and preferences of library patrons.

d. OPAC users at four of the five libraries in the survey were eager for more computer catalog terminals in the library, in locations other than the library, and in library locations other than near the traditional catalog (see Table 55). Focus group interview participants were very keen on obtaining access to OPACs at home, in university offices, campus buildings, and elsewhere.

- OPAC Workstation Design Considerations

a. OPAC users expressed problems with different types of terminals requiring different entry procedures.

b. OPAC users' unfavorable experiences with amount of writing space and height of terminals suggest that libraries consider increasing writing space and providing chairs for OPAC searchers.

c. Interview participants who were most concerned about comfort at computer catalog workstations were technical services and processing staff whose jobs required many continuous hours at a terminal.

d. Few of the libraries at which surveys or interviews were completed made hardcopy printers or printed output available. Survey respondents ranked printers high in a list of the top-ranked additional OPAC features, and focus group participants were very interested in obtaining hardcopy printouts of retrieved citations.

e. Other services and features expressed in a number of group interviews were:

   1. Same-day service for hardcopy printouts.

   2. Placement of an automatic hold on retrieved materials in circulation.

   3. Automatic delivery of library materials to patron's home or office.

   4. Designation of the location where a retrieved item is shelved.

- Enriching the OPAC's Database

  a. Journal titles were ranked first by surveyed patrons at academic and public libraries among library materials that should be added to the OPAC (see Table 56). Interview remarks demonstrated that users were referring to *titles of journal articles* in individual issues. Thus, patrons were interested in the addition to the OPAC of the contents of periodical indexes such as *Reader's Guide to Periodical Literature*, *General Literature Index*, and of specific subject-oriented periodical indexes, e.g., social sciences, humanities, etc.

  b. Newspaper articles, subject bibliographies, and other library reference works were mentioned by survey respondents and/or interview participants as materials they would like added to the OPAC. Patrons' interest in the addition of important reference literature to the OPAC's database suggests the implementation of the following two OPAC features which employ the data already available in the MARC record to direct OPAC users to reference literature:

     1. Mischo's (1980) rotation algorithm applied to the subject-rich fields of reference books' MARC records.

     2. Analysis of the 510 fields of CONSER records (which state what periodical indexes cover the journal) through the use of an algorithm similar to one used by the PaperChase OPAC to direct users to pertinent periodical indexes, especially in highly posted OPAC searches (see Figure 24).

  c. Focus group interview participants suggested the addition of campus or community information to the OPAC.

G. User Assistance for Searching Online Public Access Catalogs

1. Online and Offline User Assistance Provided by Participating Libraries

- The types of online and offline assistance provided to OPAC users at the nine surveyed libraries and six libraries where focus group interviews were conducted demonstrated the variety and amount of assistance available. All libraries offered the assistance of reference librarians who were stationed near the OPAC terminals. Only the Library of Congress offered a center for OPAC terminals where reference librarians' principal task was to answer inquiries about OPAC use. At other libraries, reference librarians handled both reference and OPAC-use inquiries. Nearly all libraries featured printed materials on OPAC use, which were available for reference at the terminal or for the taking (see Table 57).

2. Nonusers (and Why They Will Not Be Nonusers for Very Long)

- Over 75% of surveyed nonusers were likely to use the computer catalog in the future (see Table 59). Library patrons who would not use the computer catalog in the future had selected "card catalog easier" or "dislike computers in general" as the reasons why they had not yet used the online public access catalog. In general, the main reasons why surveyed nonusers have not yet used the OPAC are that they have not taken training sessions on use, they have not had time to learn, or they had no need to use a library catalog (see Table 58).

- The majority of surveyed nonusers felt that it would take less than 30 minutes to learn to use the OPAC. More nonusers at the five libraries where OCLC was the system under study than at libraries where local online access was studied (Syracuse, Ohio State, Dallas Public, Iowa City Public) thought that it would take more than 30 minutes to learn how to use OCLC (see Table 60). The difference between the two groups might be attributed to the perceived complexity of the OCLC terminal with its many buttons, the paucity of patrons actually seen using the OCLC terminal, or the location of terminals in reference departments.

- A large percentage of nonusers who felt that the OPAC would be difficult to learn also felt that it would take longer than one hour to learn (see Table 61).

- Many current nonusers of OPACs will eventually become users regardless of the changes in libraries' methods of assisting patrons. Libraries might have to change their methods of assisting patrons to win over nonusers who feel that the card catalog is easier to use than the OPAC and who dislike computers in general, such as providing increased amount of individualized instruction, e.g., introduction of a computer catalog center similar to the one at the Library of Congress, volunteer trainers, or fostering peer teaching for reluctant and self-conscious faculty.

3. Online and Offline User Assistance

- The majority of OPAC users at all surveyed libraries first heard about the OPAC by seeing a terminal in the library. A large number of OCLC users first heard about the OPAC from the library staff (see Table 62).

- OCLC users and OPAC users at Dallas Public learned how to use the OPAC from library staff. In contrast, users at Syracuse and Ohio State relied primarily on printed material to learn to use the OPAC. Iowa City Public's OPAC had been cited by OPAC users for its online assistance in a discussion of OPAC features with which users had had favorable experiences (see Table 50). Users of Iowa City Public's OPAC learned how to use the system by consulting instructions on the terminal screen or in printed materials (see Table 63).

- The source of assistance employed by OCLC users and Dallas Public users in their most recent search was the library staff. Syracuse and Ohio State OPAC users consulted printed material or signs. Iowa City Public's users either did not seek help, or they followed the instructions on the terminal screen to complete their most recent search of the OPAC. The experiences of Iowa City Public patrons contrasted with that of patrons at other libraries because the former relied on the available online assistance to perform their searches (see Table 64).

- Comparisons of the assistance used by very frequent users of the Iowa City Public OPAC with that used by very infrequent or first-time users showed similar patterns in the sources of assistance employed (see Tables 65 and 66). In contrast, many first-time users and infrequent users of the Syracuse, Ohio State, Dallas Public, and OCLC systems obtained the assistance of the library staff. The findings at Iowa City Public suggested that OPAC searchers would use online assistance when it was provided; this might also reduce searchers' dependence on the library staff, especially those searchers who rarely used the OPAC or used it for the first time.

4. Recommendations for Brochures, Information Sheets, and Other Printed Materials

- Enhancements to OPACs regarding offline or online user assistance were gleaned primarily from focus group interviews. Surveyed users at Dallas Public and Ohio State called for printed materials to assist them at the computer catalog terminal (see Table 55). Since the latter already provided printed brochures for the taking, survey respondents probably wanted a command chart mounted on the terminal near the screen, similar to the charts on terminals at Mankato State.

- An understanding of focus group interview participants' remarks about printed materials available in their libraries led to the following guidelines about the production of printed materials:

  1. Prepare printed materials of varying lengths.

  2. Include meanings for abbreviations used in OPAC records.

3. Show examples of the major search approaches, i.e., author, title, author/title, subject, call number.
4. Identify field labels and field information in examples of bibliographic record displays.
5. Avoid small print, footnotes, jargon.
6. Highlight the basics of subject searching.
7. Enumerate the coverage and contents of the database and tell users when they should also consult the library's other catalog(s).
8. Pretest printed material.

5. Assistance from Library Staff

- The experiences of library staff listed below describe the range of services they provided to OPAC users who obtained their assistance:

  1. On-the-spot individual instruction.
  2. Answering reference inquiries.
  3. Getting the patron started.
  4. Trouble-shooting.
  5. Group instruction.
  6. Performing online searches for patrons.
  7. Individualized instruction by appointment.
  8. Preparation of offline user aids.

- Library patrons expressed the value of consulting the library staff about OPAC-use problems. Experiences with volunteer trainers at terminals at Dallas Public and Iowa City Public differed. Libraries considering volunteer trainers should provide workshops on at least a monthly basis to help trainers exercise their OPAC searching skills, inform them of new developments in the library's services, and teach them new OPAC enhancements or search strategies. Also, volunteers could debrief library staff about patrons' problems, which could help in the enhancement of the system or the planning of new services.

- Patrons at libraries where there were no formal OPAC workshops or classes expressed interest in attending formal training sessions. The major reason nonusers had not yet used the OPAC was that they had not yet attended training sessions on OPAC use. Thus, training sessions would probably be attended by these library patrons.

6. Online User Assistance

- The importance of online user assistance was emphasized in the comparison of user assistance sought by frequent users and by infrequent or first-time users (see Tables 65 and 66). The availability of online user assistance might reduce dependence on the library staff by first-time or very infrequent library users.

- The following suggestions on how to improve online assistance capabilities of OPACs were elicited from focus group interview participants:

    1. Computer-assisted instruction programs.

    2. Dialog modes for patrons based on their experience or frequency of OPAC use.

    3. Informative error messages that explain the nature of the error and how to enter the information correctly.

    4. Prompts that direct the patron to the next logical step in the ongoing search and/or suggest possible actions to take.

    5. User-oriented interface that is like a helpful companion working together with patrons to find library materials rather than working against them.

7. Relearnability of the online public access catalog was a theme that emerged in focus group interviews with library patrons and staff and is supported by statistics on the frequency of library visits, OPAC use, and use of computer systems other than the computer catalog. Online user assistance such as computer-assisted instruction, directive and suggestive prompts, and multiple-dialog modes might be the most successful means of making sure that online public access catalogs would be easy and painless for library patrons and staff to relearn. Research with the concept of supplantation and online retrieval systems is another promising approach to solving the problem of relearnability. Improving the relearnability of existing OPACs and ensuring it in future OPACs is a key issue in the development of online public access catalogs.

1.0 PROJECT OBJECTIVES

Three methods are used in OCLC's study of online public access catalogs (OPACs): (1) transaction log analysis; (2) self-administered closed-ended questionnaire; and (3) focus group interviews. Analysis of transactions yields quantitative information about OPAC use and patterns of use; questionnaire data yield quantitative information about library users' needs and perceptions of OPACs. Focus group interviews provide quantitative information about library users' needs and perceptions of OPACs, which both supplements transactional analysis and questionnaire findings and helps to interpret and understand quantitative data from these two methods.

This report covers the analysis of questionnaires and focus group interviews at several libraries using online public access catalogs.

The objective of this part of the research project was to evaluate online public access catalogs (OPACs) through an analysis of patrons' needs and perceptions. The evaluation of existing OPACs is necessary to ensure that present and future development of such catalogs will lead to greater acceptance by library patrons. To achieve the project objective, the following specific areas were studied:

1. OPAC users' reactions to system features
2. Library patron and staff suggestions for system improvements, system enhancements, and new services
3. Library patrons' perceptions of and attitudes toward OPACs in general, and in comparison with traditional forms of the library catalog, i.e., card, microform, or book catalogs
4. OPAC users' levels of satisfaction with their online searches
5. Demographic information characteristic of OPAC users and OPAC nonusers

Two methods were used to gather data on library patrons' needs and perceptions of OPACs: (1) self-administered questionnaires; and (2) focus group interviews. Questionnaires were completed by library patron users and nonusers of the online public access catalogs at two public libraries, seven university libraries, and one state library. Focus group interview participants were library public and technical services staff and library patron users and nonusers of OPACs at two public libraries, two university libraries, and one federal library.

This report describes the project's primary objective, i.e., evaluating existing online public access catalogs through an analysis of patrons' needs and perceptions. Online public access catalogs are now in their infancy. The participating libraries whose OPACs were studied are therefore pioneers in this era. Their participation in the evaluation part of the project is a display of both selflessness and magnanimity. The OPACs and support services of the participating libraries have been laid bare in this study and evaluated through the questionnaire and interview responses of library patrons and staff. By permitting this study, the participating libraries allowed us to examine their experiences in the introduction of the OPACs, so that we could learn from their example and ensure that the future development of OPACs and enhancement of existing ones would be in harmony with the needs and perceptions of library patrons and staff.

2.0 METHODOLOGY AND DATA ANALYSIS

2.1 SELF-ADMINISTERED QUESTIONNAIRES

In early 1981, self-administered questionnaires for users and nonusers of online catalogs were constructed by a committee composed of the principals whose studies of OPACs were sponsored by the Council on Library Resources, Inc. (CLR): J. Matthews and Associates (JMA); Library of Congress (LC); OCLC Online Computer Library Center, Inc.; The Research Libraries Group, Inc. (RLG); University of California/Division of Library Automation (UC/DLA); University of Toronto Library Automation System (UTLAS); and their respective consultants. Periodically, the developing instruments were informally tested. Librarians at Stanford University, library school students at Syracuse University, and library patrons at The Ohio State University and the Library of Congress completed questionnaires at various stages of the instruments' development and made comments about improving them.

In fall 1981, a formal pretest of the user and nonuser questionnaires was conducted at 13 libraries and coordinated by the five of the principal organizations, i.e., JMA, LC, OCLC, RLG, and UC/DLA. This pretest included post-questionnaire personal interviews with respondents in which they were asked to describe their difficulties when completing the questionnaire. Analyses of the post-questionnaire interviews, on-site supervisors' reports, validity checks, response-set bias tests, questionnaire length tests, frequency distributions, and missing values resulted in many changes to the questionnaires. The most significant change to the questionnaires was the reduction of the number of user questions from 81 to 59. Details on the pretest are given in an earlier report (Markey, 1982).

In spring 1982, 29 institutions took part in the administration of user and nonuser questionnaires. OCLC was responsible for questionnaire administration at the following 10 institutions:

1. University of Akron
2. Case Western Reserve University
3. Dallas Public Library
4. Iowa City Public Library
5. The Ohio State University
6. Ohio University
7. State Library of Ohio
8. Syracuse University
9. University of Texas at Austin
10. University of Texas at Dallas

Questions in the questionnaire are listed in Table 1 followed by the section(s) of this report that cover users' responses. Appendix A also enumerates questions in the user questionnaire followed by the percentages of responses and number of respondents per question. The user questionnaire contained 59 questions, organized into the following four parts and subject areas:

Part 1. Most recent OPAC search
- a. type of search
- b. purpose of the search
- c. what was retrieved in the search
- d. satisfaction with the search
- e. help needed during the search
- f. general attitude toward the OPAC

Part 2. Experiences with OPAC features and services
- a. experiences with OPAC features
- b. experiences with OPAC support services
- c. experiences finding a free OPAC terminal

Part 3. Improvements to the OPAC
- a. human factors
- b. features
- c. support services
- d. materials

Part 4. Demographic information about the OPAC user

Questions in the nonuser questionnaire are listed in Table 2 followed by the section(s) of this report in which nonusers' responses are covered. Appendix B also enumerates questions in the nonuser questionnaire followed by the percentages of responses and number of respondents per question.

The nonuser questionnaire contained 15 questions, which were organized into the following two parts and subject areas:

Part 1. Expectations of the OPAC
- a. reasons for nonuse
- b. learning to use the OPAC
- c. general attitude toward the OPAC and library's other catalog

Part 2. Demographic information about the OPAC nonuser

Detailed instructions for administering user and nonuser questionnaires are included in the report of the pilot test (Markey, 1982). "Users" of online public access catalogs were persons 14 years old or over observed using the OPAC, i.e., sitting or standing in front of a terminal and touching keys or the screen, looking at a display device, referring to a display device to write something down, etc. Users were asked to complete a user questionnaire when they left the terminal or terminal area. "Nonusers" of OPACs were persons 14 years old or over who responded negatively to the data collector's question asking whether they had ever used the library system's OPAC; library patrons were approached by data collectors to complete a nonuser questionnaire at a location inside and near the entrance to a library building with OPAC terminals.

Questionnaires were completed by users and nonusers during randomly selected time blocks ranging from two to four hours. The sampling plan outlined by Baratz (1982) was followed as much as possible, but each institution's calendar, hours, and events varied. For example, Syracuse University's spring semester ended three weeks after questionnaires were printed and Dallas Public Library's newly built Central Library opened to the public two weeks after the questionnaires were printed. Consequently, data collection schedules varied in order to achieve the target number of completed questionnaires between the date questionnaires were printed and distributed (April 1, 1982) and the last possible date questionnaires were accepted for scanning (June 15, 1982).

Completed questionnaires were sent to UC/DLA for scanning and data analysis. Details of the data analysis plan are described in a separate report (Lawrence, Larson, and Graham, 1982). Hardcopy reports and computer data files of user and nonuser questionnaire statistics were produced from the SPSS analysis at UC/DLA and forwarded to the OCLC project team in summer 1982.

OCLC's project team coordinated the administration of user and nonuser questionnaires at nine libraries between April 2, 1982 and June 2, 1982. Case Western Reserve University's administration of the user questionnaire was performed online. Completed questionnaires were received in winter 1983 and analyzed separately from the other nine libraries. Appendix D is a discussion of the analysis of the Case Western Reserve University online user questionnaire results.

Table 3 enumerates user questionnaire response rate and productivity data of the nine participating libraries. The acceptance rate of users at eight of the nine libraries exceeds 60%. Ohio State's low acceptance rate (45%) was attributed to the addition of more time blocks to the data collection schedule. These additional time blocks immediately preceded final exams; thus, students may have been too busy or preoccupied to participate. Syracuse University was the most prolific data collection site contributing 1339 user and 294 nonuser questionnaires in a three-week period. Data collection at Syracuse was meant to be swift because questionnaires were received from the printer on April 1, 1982 at Syracuse University whose final exam period began three weeks later.

Recruitment of users at Iowa City Public Library was the most fruitful; nearly six users per scheduled hour were recruited and completed questionnaires. Unfortunately, data collection at Iowa City was marred by weeks of downtime when the library experienced an unprecedented series of hardware problems. Attitudes of Iowa City users and nonusers toward the library's OPAC might have been affected by these problems and expressed in the questionnaire responses.

The recruitment of users at the five sites where the OCLC system was studied, i.e., University of Akron, Ohio University, State Library of Ohio, University of Texas at Austin, and University of Texas at Dallas, proceeded so slowly that it was necessary to throw out the schedules of randomly selected time blocks and outline a new procedure. At each site, the OCLC public access terminal was in a reference librarian's line of sight. While performing their reference duties, library staff members attempted to recruit each patron who used the OCLC terminal throughout the entire day, rather than during scheduled time blocks of two to four hours. Thus, the number of scheduled hours listed for the five OCLC sites was large, but the number of completed questionnaires per hour was very small because so few patrons used the OCLC public access terminals. Questionnaires completed at OCLC sites may contain biased responses for questions on librarian assistance because library staff might have been most attentive to the OCLC terminal users who needed assistance.

Table 4 enumerates nonuser questionnaire response rate and productivity data for the nine participating libraries. Recruitment of nonusers proceeded smoothly with a minimum of problems. At least 94% of the target number of questionnaires was achieved at seven of the nine sites. The acceptance rate matched or exceeded 65% at all nine sites.

2.2 FOCUS GROUP INTERVIEWS

Focus group interviews were used to collect information on library staff and patron needs and perceptions of online public access catalogs. The method had been employed in an earlier and related study to obtain library patrons' expectations, needs, and criteria for success when searching libraries' subject catalogs (Kaske and Sanders, 1980). A complete description of the focus group interview method is given in Merton, Fiske, and Kendall (1956).

Four groups of participants were sought for focus group interviews: (1) library patron users of OPACs; (2) library patron nonusers of OPACs; (3) reference or public services library staff; and (4) technical services library staff. OCLC conducted focus group interviews at the following six institutions:

1. Dallas Public Library
2. Iowa City Public Library
3. Library of Congress
4. Mankato State University
5. The Ohio State University
6. Syracuse University

Table 5 enumerates the questions posed to each group. Table 6 lists the six libraries participating in focus group interviews, the number of group interviews, and the number of respondents.

To perform the analysis of the focus group interviews, one of OCLC's interview team members listened to audio tapes of every interview and read typed transcripts. At the same time, substantive comments from interview participants were recorded on note cards, which were given emerging themes, e.g., subject headings, librarian assistance, etc. An analysis of these themes and participants' remarks resulted in a descriptive framework in which participants' remarks were categorized into four general areas: (1) existing system; (2) card to computer catalog transition; (3) database; and (4) user assistance. These four general areas were further broken into categories. Table 7 presents the composite scheme into which focus group respondents' remarks at the six participating libraries are divided. Focus group interview comments were a valuable source for providing insight into and interpretation of questionnaire responses. These comments have therefore been integrated into the text of the report and not treated separately in a single chapter. The right column of Table 7 enumerates the sections of this report in which focus group comments were covered.

2.3 LIMITATIONS AND STRENGTHS OF THE SURVEY AND FOCUS GROUP INTERVIEW METHODS

The questionnaire was intended for surveying library patrons 14 years old or over. Library staff members and youngsters less than 14 years old were not included in the survey. The large number of respondents in certain demographic categories overshadowed responses of relatively small but vocal groups such as university faculty, older adults, and young adults. In focus group interviews, grade school students emerged as frequent and avid OPAC users, yet the questionnaire was not offered to youngsters. Thus, important groups of OPAC users and nonusers were not surveyed because they were not given questionnaires. The survey responses of some groups were overshadowed because they were represented in the population in relatively small groups in comparison with the majority of respondents.

The focus group interview technique was a means of collecting information about groups whose needs, perceptions, and attitudes toward the OPAC were virtually lost in aggregate statistics or who were not included in questionnaire administration. At each interview site, focus group participants were recruited from "captured" groups, e.g., university classes, mandatory instructional workshops, or a general plea for volunteer participation. Group participants "nabbed" at universities were undergraduate users, undergraduate nonusers, graduate users, graduate nonusers, faculty users, faculty nonusers, reference staff, and technical services staff. Group participants "nabbed" at public libraries and federal libraries were young adult users, young adult nonusers, adult users, adult nonusers, older adult users, older adult nonusers, reference staff, and technical services staff. Table 8 lists group composition and the number of groups per site.

In public libraries, the remarks of several children and young adult groups were obtained. Older adult nonusers voiced their perceptions and concerns about online public access catalogs at Iowa City Public Library and the Library of Congress. Among the academic libraries, eight groups of faculty participated. Reference and technical services staff contributed their comments at all six focus group interview sites.

Two drawbacks to the method of focus groups are: (1) the voluntary recruitment of participants; i.e., participants were not randomly selected; and (2) inability to quantify participants' remarks. Since comments of interview participants were used in this report to provide insight into and assistance in interpreting questionnaire responses, the drawbacks of the focus group interview technique should have little effect on the way in which interview remarks were used in the analysis of results.

Table 1. User Questions and Section(s) of the Report Covering Users' Responses

User Question	Section(s) Covering Responses
1. I came to this computer search with: (Mark ALL that apply) a. A complete author's name b. Part of an author's name c. A complete title d. Part of a title e. A topic word or words f. A subject heading or headings g. A complete call number h. Part of a call number	4.3
2. By searching this computer catalog I was trying to find: (Mark ALL that apply) a. A specific book, journal or magazine b. Books, journals or magazines on a topic or subject c. Books by a specific author d. Information such as publisher, date, spelling of a name, etc. e. If a book that I know the library has is available for my use f. Another library that has a book, journal or magazine that I want	4.3
3. I searched for what I wanted by: (Mark ALL that apply) a. A complete author's name b. Part of an author's name c. A complete title d. Part of a title e. A topic word or words f. A subject heading or headings g. A complete call number h. Part of a call number	4.3

Table 1. (cont.) User Questions and Section(s) of the Report Covering Users' Responses

User Question	Section(s) Covering Responses
4. I need this information for: (Mark ALL that apply) a. Recreational uses b. Making or fixing something c. My work or job d. Personal interest e. A hobby f. Class or course reading g. A course paper or report h. A thesis or dissertation i. Writing for publication j. Teaching or planning a course k. Keeping up on a topic or subject	4.2
5. In this computer search I found: (Mark ONE only) a. More than I was looking for b. All that I was looking for c. Some of what I was looking for d. Nothing I was looking for	4.4
6. In relation to what I was looking for, this computer search was: (Mark ONE only) a. Very satisfactory b. Somewhat satisfactory c. Somewhat unsatisfactory d. Very unsatisfactory	5.5
7. I came across things of interest other than what I was looking for: a. YES b. NO	4.4, 5.3, 5.5

Table 1. (cont.) User Questions and Section(s) of the Report Covering Users' Responses

User Question	Section(s) Covering Responses
8. I got help in doing this computer catalog search from: (Mark ALL that apply)	6.2.4, 7.3
a. Printed material or signs b. Instructions on the terminal screen c. Library staff member d. Person nearby e. I did not get help	
9. My overall or general attitude toward the computer catalog is: (Mark ONE only)	5.1, 5.3
a. Very favorable b. Somewhat favorable c. Somewhat unfavorable d. Very unfavorable	
10. Compared to the card, book, or microfiche catalog in this library, the computer catalog is: (Mark ONE only)	5.3, 5.5
a. Better b. About the same c. Worse d. Can't decide	
11. A computer search by title is difficult	6.2, 6.2.1, 6.3.4.1
12. A computer search by author is easy	6.2, 6.2.1, 6.3.4.1
13. A computer search by subject is difficult	6.2.1, 6.3, 6.3.1, 6.3.2, 6.3.3, 6.3.4.2
14. A computer search by call number is easy	6.2, 6.2.1, 6.3.3
15. A computer search by combined author/title is difficult	6.2, 6.2.1, 6.3.4.1
16. Remembering commands in the middle of the search is easy	6.2, 6.2.2

Table 1. (cont.) User Questions and Section(s) of the Report Covering Users' Responses

User Question	Section(s) Covering Responses
17. Finding the correct subject term is difficult	6.3, 6.3.1, 6.3.2, 6.3.3, 6.3.4.2
18. Scanning through a long display (forward or backward) is easy	--
19. Increasing the result when too little is retrieved is difficult	6.3, 6.3.4
20. Reducing the result when too much is retrieved is easy	6.3, 6.3.4
21. Understanding explanations on the screen is difficult	6.2, 6.2.3, 6.3
22. Using codes or abbreviations for searching is easy	--
23. Abbreviations on the screen are easy to understand	6.2.2, 6.3.5
24. Locating call numbers on the screen is difficult	6.2, 6.2.2
25. Searching with a short form of a name or a word (truncation) is easy	6.3, 6.3.6
26. Using logical terms like AND, OR, NOT is difficult	--
27. Remembering the exact sequence or order of commands is easy	6.2, 6.2.2, 6.2.3
28. Understanding the initial instructions on the screen is difficult	6.2, 6.2.3
29. Understanding the display for a single book, journal or magazine is easy	6.2, 6.2.2
30. Understanding the display that shows more than a single book, journal or magazine is difficult	6.2, 6.2.2
31. Interrupting or stopping the display of information is easy	6.3, 6.3.6
32. Typing in exact spelling, initials, spaces and hyphens is difficult to do	--

Table 1. (cont.) User Questions and Section(s) of the Report Covering Users' Responses

User Question	Section(s) Covering Responses
33. Knowing what is included in the computer catalog is easy to remember	6.3, 6.3.7
34. The order in which items are displayed is easy to understand	6.2, 6.2.2
35. Displayed messages are too long	6.2, 6.2.3
36. Selecting from a list of choices takes too much time	--
37. Entering commands when I want to during the search process is difficult	6.3, 6.3.5
38. The rate at which the computer responds is too slow	6.3, 6.3.5
39. The availability of signs and brochures is adequate	6.2, 6.2.4, 6.3, 6.3.7
40. Signs and brochures are not very useful	6.2, 6.2.4
41. The staff advice is often not helpful	6.2, 6.2.4
42. It is hard to find a free terminal	6.2, 6.2.4, 6.3, 6.3.7
43. When I use the computer catalog terminal: (Mark YES or NO) a. The keyboard is confusing to use b. There is too much glare on the screen c. The letters and numbers are easy to read d. The lighting around the terminal is too bright e. There is enough writing space at the terminal f. Nearby noise is distracting g. The terminal table is too high or too low h. The printer is easy to use	6.3.8

Table 1. (cont.) User Questions and Section(s) of the Report Covering Users' Responses

User Question	Section(s) Covering Responses
44. Select up to FOUR additional features you would like this computer catalog to have:	6.3.2.3, 6.3.2.4, 6.3.4.2, 6.4, 7.4.3
a. Providing step by step instructions	
b. Searching by any word or words in a title	
c. Searching by any word or words in a subject heading	
d. Limiting search results by date of publication	
e. Limiting search results by language	
f. Ability to search by journal title abbreviations	
g. Ability to change the order in which items are displayed	
h. Ability to view a list of words related to my search words	
i. Ability to search for illustrations and bibliographies	
j. Ability to search by call number	
k. Ability to print search results	
l. Ability to search a book's table of contents, summary or index	
m. Ability to know if a book is checked out	
n. Ability to tell where a book is located in the library	
o. None	
45. Select up to FOUR computer catalog service improvements you would like the library to make:	6.3.7, 7.4.1
a. More terminals	
b. Terminals at locations other than near the card catalog	
c. Terminals at places other than library buildings	
d. A chart of commands posted at the terminal	
e. A manual or brochure at the terminal	
f. An instruction manual for purchase	
g. Training sessions	
h. Slide/tape/cassette training program	
i. None	

Table 1. (cont.) User Questions and Section(s) of the Report Covering Users' Responses

User Question	Section(s) Covering Responses
46. Select up to FOUR kinds of material you would like to see added to the computer catalog: a. Dissertations b. Motion picture films c. Government publications d. Journal or magazine titles e. Maps f. Manuscripts g. Music scores h. Newspapers i. Phonograph records or tapes j. Technical reports k. More of the library's older books l. None m. Other	6.4
47. BRIEFLY DESCRIBE ANY OTHER PROBLEMS WITH THIS COMPUTER CATALOG OR CHANGES YOU WOULD LIKE MADE TO IT:	
48. I come to this library: a. Daily b. Weekly c. Monthly d. About four times a year e. About once a year f. Not before today	3.2
49. I use this computer catalog: a. Every library visit b. Almost every visit c. Occasionally d. Rarely e. Not before today	3.3, 3.4.2, 4.4, 5.3, 7.3

Table 1. (cont.) User Questions and Section(s) of the Report Covering Users' Responses

User Question	Section(s) Covering Responses
50. I use the library's book, card or microfilm catalog: a. Every visit b. Almost every visit c. Occasionally d. Rarely e. Never	4.5
51. I use a computer system other than the library's computer catalog: a. Daily b. Weekly c. Monthly d. About four times a year e. About once a year f. Never	7.3, 7.5
52. I first heard about the computer catalog from: (Mark ONE only) a. Noticing a terminal in the library b. Library tour, orientation or demonstration c. An article or written announcement d. A course instructor e. A friend or family member f. Library staff	7.3
53. I learned how to use this computer catalog: (Mark ALL that apply) a. From a friend or someone at a nearby terminal b. Using printed instructions c. Using instructions on the terminal screen d. From the library staff e. From a library course or orientation f. From a slide/tape/cassette program g. By myself without any help	7.3

Table 1. (cont.) User Questions and Section(s) of the Report Covering Users' Responses

User Question	Section(s) Covering Responses
54. My age group is: a. 14 and under b. 15 - 19 years c. 20 - 24 years d. 25 - 34 years e. 35 - 44 years f. 45 - 54 years g. 55 - 64 years h. 65 and over	3.4.1
55. I am: a. Female b. Male	3.4.2
56. Mark your current or highest educational level: (Mark ONE only) a. Grade School or Elementary School b. High School or Secondary School c. Some College or University d. College or University Graduate	3.4.3
57. The category that best describes my academic area is: (Mark ONE only) a. Arts and Humanities b. Physical/Biological Sciences c. Social Sciences d. Business/Management e. Education f. Engineering g. Medical/Health Sciences h. Law i. Major not declared j. Interdisciplinary	3.4.3
58. The main focus of my academic work at the present time is: (Mark ALL that apply) a. Course Work b. Teaching c. Research	4.2

Table 1. (cont.) User Questions and Section(s) of the Report Covering Users' Responses

User Question	Section(s) Covering Responses
59. My present affiliation with this college or university is: a. Freshman/Sophomore b. Junior/Senior c. Graduate - masters level d. Graduate - doctoral level e. Graduate - professional school f. Faculty g. Staff h. Other	3.4.3, 4.2, 5.5

Table 2. Nonuser Questions and Section(s) of the Report Covering Nonusers' Responses

Nonuser Question	Section(s) Covering Responses
1. I have not used the computer catalog up to now because: (Mark ALL that apply) a. I do not like to use computers b. I did not know there was a computer catalog c. I do not know where it is d. I have not had time to learn to use it e. I have not taken training sessions on how to use it f. There has not been any staff at the terminals to assist me in using it g. The terminals were all in use when I wanted to use it h. I have not needed to use any library catalog recently i. The card catalog is easier to use j. The card catalog contains more of the information I need k. I am a visitor or infrequent user of this library	5.4, 7.2
2. How much time do you think it takes to learn to use the computer catalog? a. A day or more b. Between 1/2 of a day and a day c. Between an hour and 1/2 of a day d. Between 30 minutes and an hour e. Between 15 minutes and 30 minutes f. 15 minutes or less	5.4.4, 7.2
3. How difficult or easy do you think it would be to learn to use the computer catalog? a. Very difficult b. Somewhat difficult c. Somewhat easy d. Very easy	5.4.4, 7.2
4. My overall or general attitude toward the computer catalog is: a. Very favorable b. Somewhat favorable c. Somewhat unfavorable d. Very unfavorable	5.1, 5.4.4

Table 2. (cont.) Nonuser Questions and Section(s) of the Report Covering Nonusers' Responses

Nonuser Question	Section(s) Covering Responses
5. How likely are you to use the computer catalog in the future? a. Very likely b. Somewhat likely c. Somewhat unlikely d. Very unlikely	5.4, 5.4.4, 7.2
6. Compared to the card, book, or microfiche catalog in this library, the computer catalog is: (Mark ONE only) a. Better b. About the same c. Worse d. Can't decide	5.5
7. I come to this library: a. Daily b. Weekly c. Monthly d. About four times a year e. About once a year f. Not before today	3.2
8. I use the library's book, card or microfilm catalog: a. Every visit b. Almost every visit c. Occasionally d. Rarely e. Not before today	4.5
9. I use a computer system other than the library's computer catalog: a. Daily b. Weekly c. Monthly d. About four times a year e. About once a year f. Never	7.5

Table 2. (cont.) Nonuser Questions and Section(s) of the Report Covering Nonusers' Responses

Nonuser Question	Section(s) Covering Responses
10. My age group is:	3.4.1
a. 14 and under	
b. 15 - 19 years	
c. 20 - 24 years	
d. 25 - 34 years	
e. 35 - 44 years	
f. 45 - 54 years	
g. 55 - 64 years	
h. 65 and over	
11. I am:	3.4.2
a. Female	
b. Male	
12. Mark your current or highest educational level: (Mark ONE only)	3.4.3
a. Grade School or Elementary School	
b. High School or Secondary School	
c. Some College or University	
d. College or University Graduate	
13. The category that best describes my academic area is: (Mark ONE only)	3.4.3
a. Arts and Humanities	
b. Physical/Biological Sciences	
c. Social Sciences	
d. Business/Management	
e. Education	
f. Engineering	
g. Medical/Health Sciences	
h. Law	
i. Major not declared	
j. Interdisciplinary	

Table 2. (cont.) Nonuser Questions and Section(s) of the Report Covering Nonusers' Responses

Nonuser Question	Section(s) Covering Responses
14. The main focus of my academic work at the present time is: (Mark ALL that apply)	4.2
a. Course Work	
b. Teaching	
c. Research	
15. My present affiliation with this college or university is:	3.4.3
a. Freshman/Sophomore	
b. Junior/Senior	
c. Graduate - masters level	
d. Graduate - doctoral level	
e. Graduate - professional school	
f. Faculty	
g. Staff	
h. Other	

Table 3. User Questionnaire Response Rate and Productivity Data

Library or Library System	No. of Time Blocks	No. of Scheduled Hours	No. of Completed Questionnaires Per Hour	Complete	Incomplete	Total Acceptance	Decline	Total Valid	Acceptance Rate (%)	Completion Rate (%)	Response Rate (%)	No. Successfully Scanned
Syracuse University Apr. 1- Apr. 21, 1982	84	252	5.1	1286	83	1369	647	2016	68	94	64	1339
Ohio State University Apr. 6- May 28, 1982	131	393	3.5	1369	111	1480	1774	3254	45	93	42	1247
Dallas Public Library Apr. 1- May 29, 1982	198	488	2.1	1019	100	1119	349	1468	76	91	69	1081
Iowa City Public Library Apr. 5- May 29, 1982	32	67	5.8	386	33	419	136	555	76	92	70	410
University of Akron Apr. 1- May 14, 1982	54	505	.25	127	7	134	35	169	79	95	75	132
Ohio University Apr. 12- May 23, 1982	27	54	.89	48	4	52	20	72	72	92	67	51
State Library of Ohio Apr. 29- June 2, 1982	7	41	.12	5	0	5	3	8	63	100	63	5
University of Texas at Austin Apr. 5- May 14, 1982	35	261	.39	102	3	105	30	135	78	97	76	104
University of Texas at Dallas Apr. 10- May 28, 1982	14	139	.27	36	1	37	9	46	80	97	78	37
			Total User Questionnaires Accepted =			4720				Total User Questionnaires Scanned Successfully =		4406

Table 4. Nonuser Questionnaire Response Rate and Productivity Data

Library or Library System	No. of Time Blocks	No. of Scheduled Hours	No. of Completed Questionnaires Per Hour	Complete	Incomplete	Total Acceptance	Decline	Total Valid	Acceptance Rate (%)	Completion Rate (%)	Response Rate (%)	No. Successfully Scanned
Syracuse University Apr. 2- Apr. 17, 1982	18	54	5.3	288	6	294	160	454	65	98	63	294
Ohio State University Apr. 13- May 28, 1982	16	48	5.7	275	7	282	85	367	77	98	75	282
Dallas Public Library Apr. 3- June 2, 1982	33	65	4.5	292	12	304	97	401	76	96	73	299
Iowa City Public Library Apr. 19- May 24, 1982	11	23	6.2	142	3	145	55	200	73	98	71	144
University of Akron Apr. 2- Apr. 21, 1982	4	12	8.3	100	0	100	24	124	81	100	81	100
Ohio University Apr. 10- Apr. 26, 1982	7	14	7.4	104	2	106	52	158	67	98	66	106
State Library of Ohio Apr. 10- June 2, 1982	21	80	1.1	86	0	86	37	123	70	100	70	86
University of Texas at Austin Apr. 5- Apr. 16, 1982	7	14	7.3	103	2	105	32	137	77	98	75	103
University of Texas at Dallas Apr. 14- Apr. 30, 1982	7	13	8.0	103	1	104	20	124	84	99	83	104

Total Nonuser Questionnaires Accepted = 1526

Total Nonuser Questionnaires Scanned Successfully = 1518

Table 5. Focus Group Interview Questions

Question	Answered By Users	Answered By Nonusers	Answered By Reference Staff	Answered By Technical Services Staff	Categorized into General Areas of Table 7
1. Think back to the last time you used the library catalog. Walk me through what you did. What were you looking for? What did you expect as the outcome? How did you know when you had completed your use of the catalog? Why did you stop?		X			I. II. IV.
2. How do you think your search habits will change if you switch to the computer catalog?		X			II.
3. What do you like about the card catalog that you would like to see in the computer catalog?		X			I. III.
4. What do you think the computer catalog will do for you that the card catalog does not?		X			I.
5. What would the computer catalog have to do for you to use it?		X			I. III.
6. What operations or functions should the computer catalog perform? What would you like it to do? How would you improve the catalog?		X			I. III.
7. What kinds of assistance do you need when using the computer catalog? Is this assistance the same as when you used the card catalog?	X		X	X	IV. I. III.
8. Think back to the last time you used the computer catalog. Walk me through what you did. What were you looking for? What did you expect as the outcome? How did you know when you had completed your use of the catalog? Why did you stop when you did?	X		X	X	I. III. IV.
9. How do you think your search habits have changed since you began using the computer catalog?	X		X	X	II.

Table 5. (cont.) Focus Group Interview Questions

Question	Answered By Users	Answered By Nonusers	Answered By Reference Staff	Answered By Technical Services Staff	Categorized into General Areas of Table 7
10. What does the computer catalog do for you that the card catalog does not do? (and vice versa)	X		X	X	I. II.
11. A catalog in a library is mainly an access tool. Besides what it is already doing now, what else would you like the computer catalog to do for you?	X		X	X	I. III.
12. What operations or functions should the computer catalog perform that it does not do now? or How would you improve the catalog?	X				I. III.
13. Think back to the last time you helped someone at the computer catalog. How did the patron phrase her/his request? Was a degree of negotiation necessary before the search online could begin? What operations or functions do you perform that the patron is unable to do for himself? What operations or functions that are needed for a successful search do you perform that the computer catalog can't perform?			X		IV. I. III.
14. Think about your help to the patron at the computer catalog. How would you categorize it? Is it mainly trouble shooting or something else? What improvements could be done to make your task at helping the patron a little easier?			X		IV.

Table 6. Participating Libraries, Interviewers, and Respondents in Focus Group Interviews

Library	Interviewers	Dates	Number of Groups	Number of Respondents
Dallas Public Library	N. Kaske, K. Markey	May 17-21, 1982	10	59
Iowa City Public Library	P. Hartsel, K. Markey	Apr. 19-23, 1982	10	62
Library of Congress	P. Cochrane, N. Kaske, K. Markey	May 10-14, 1982	16	85
Mankato State University Memorial Library	P. Cochrane, N. Kaske	Apr. 12-15, 1982	14	96
Ohio State University Libraries	P. Hartsel, N. Kaske, K. Markey	Mar. 22-24, 1982 Apr. 26-30, 1982	10	50
Syracuse University Libraries	P. Cochrane, C. Joseph, K. Markey	Apr. 1-6, 1982	10	52
TOTAL			70	404

Table 7. Outline of Themes Emerging from Focus Group Interviews and Section(s) of the Report Covering Themes

Outline of Themes	Section(s) Covering Themes
I. EXISTING SYSTEM(S)	
A. Problems	
1. Screen (and paper) displays	6.2.2, 6.3.5
2. Order or form of output	--
3. Terminal availability	6.3.7
4. Downtime/response time	6.3.5
5. Commands	6.3.5
6. Equipment	6.3.8
7. Physical layout	6.3.8
8. Many postings	6.3.4
9. Common words	6.3.4, 7.4.3
10. Relearnability	7.5
B. Advantages	
1. Sophisticated search capabilities, i.e., commands/functions/features	5.2.4, 5.6, 6.2.1
2. Time saver	5.2.2, 5.6
3. Printout	5.2.3, 5.6
4. Databases (includes union catalog capability)	5.2.3
5. Circulation information	5.2.2, 5.6
6. Services	5.2.3
7. Patron satisfaction	5.2.1, 5.6
C. Improvements	
1. Equipment	6.3.8
2. New services	6.3.8
3. Enhancement to commands/functions/features	6.2.2, 6.3.4, 6.3.5
4. New commands/functions/features	6.3.2, 6.3.3, 6.3.4, 6.3.5
5. Access at home or locations other than library	6.3.7
6. Order of output	6.3.5
7. Screen and paper displays	6.2.2, 6.3.2.6, 6.3.5
II. CARD TO COMPUTER TRANSITION	
A. Patrons' Expectations of the OPAC	
1. Database contents	6.4
2. Circulation	5.2.2
3. Slowness of the OPAC	6.3.6
4. About learning to search	5.4.2, 5.4.3

Table 7. (cont.) Outline of Themes Emerging from Focus Group Interviews and Section(s) of the Report Covering Themes

Outline of Themes	Section(s) Covering Themes
B. What was Good in the Card Catalog Should be in the OPAC	
1. For subject searches	6.3.2.1, 6.3.3, 7.2
2. In general	
C. Fear of, Frustration with, or Insecurity Using the OPAC	3.4.1, 5.4.1, 5.4.2, 5.4.3
D. Change in Search Habits	5.6
E. Privacy at the OPAC	6.3.7
III. DATABASE	
A. Problems	
1. Finding the right subject heading	6.2.1, 6.3.1, 6.3.2.5, 6.3.2.6, 6.3.4.2
2. Ambiguous codes and abbreviations	6.2.2, 6.3.5
3. Currentness and coverage	6.3.7
4. Indexing and database accuracy	6.2.2
5. Updating	--
B. Improvements	
1. Subject headings and subject heading displays	6.3.2.1
2. Shelflist-related displays	5.6, 6.3.3
3. Name and subject cross references	6.3.2.3, 6.3.4.2
4. Periodicals, indexes, and reference books	6.4
5. Enhancement to the MARC record	6.3.2.4
6. Holdings information	6.4
7. "Community" information	6.4
8. Other bibliographic information in the library	6.4
9. Full bibliographic information	6.4, 7.2
10. Other databases	6.4
IV. USER ASSISTANCE	
A. Printed Instructions	6.3.7, 7.4.1, 7.4.2

Table 7. (cont.) Outline of Themes Emerging from Focus Group Interviews and Section(s) of the Report Covering Themes

Outline of Themes	Section(s) Covering Themes
B. Librarian's Assistance	5.4.3, 7.1, 7.4.2
1. On-the-spot assistance	5.4.1, 6.3.1, 6.3.7, 7.4.2
2. Classes, workshops, etc.	7.4.2
3. Publicizing the OPAC	7.3
4. Librarians' needs	7.4.2
C. Librarians' Expectations of Library Users	--
D. Computer Assistance	7.4.3, 7.5
1. Computer-assisted instruction	7.4.3
2. Naive and experienced modes	7.4.3
3. Prompts, error messages, computer responses, help screens	6.2.2, 6.2.3, 6.3.4.1, 6.3.5, 6.3.7, 7.4.3
E. Predefined Search Tactics for the OPAC Interface	6.3.3, 6.3.4.2, 6.4

Table 8. Focus Group Composition at the Six Interview Sites

Composition of Groups	Dallas Public	Iowa City	LC	Mankato State	Ohio State	Syracuse
Child users		1				
Young adult users	3	3				
Adult users	1	1	2			
Adult nonusers	2		2			
Older adult nonusers		1*	1			
Undergraduate users				3	1	1
Undergraduate nonusers			1		1	1
Graduate users		1		3	1	1
Graduate nonusers				1*	1	1*
Faculty users				3	1	1
Faculty nonusers				1*	1	1*
Reference staff	2	2	3	1	2	2
Technical services staff	1	1	2	1	1	1
Library staff users			3			1
Nonprofessional trainers	1			1	1	
Automated systems staff			1			
Automated systems advisory group			1			
Total No. of Groups:	10	10	16	14	10	10

*Light users

3.0 COMPARISONS OF DEMOGRAPHIC DATA ABOUT SURVEYED OPAC USERS AND NONUSERS

3.1 INTRODUCTION

Questionnaires were administered at 29 institutions that participated in the CLR-sponsored Online Public Access Catalog Evaluation Project. These 29 institutions are listed in Appendix C. When statistics are presented in the text describing questionnaire responses from all 29 participating institutions, the term "CLR-aggregate" is used.

Participating libraries were categorized into five types: (1) Association of Research Libraries (ARL) member; (2) academic; (3) community college; (4) federal and state; and (5) public (see Appendix C). When statistics describing responses from the 29 participating institutions are presented in the text and categorized by type of library (TOL), the term "TOL-aggregate" is used.

This report focuses on the analysis of questionnaire responses from the nine libraries whose questionnaire administration was coordinated by OCLC. The term "OCLC-aggregate" is used when presenting statistics from these nine libraries. CLR- and TOL-aggregates are used to support an interpretation or finding, or to provide exceptions to an interpretation or finding.

3.2 FREQUENCY OF LIBRARY VISITS BY OPAC USERS AND NONUSERS

Frequency of library visits was found to vary among library patrons and types of libraries visited, and between users and nonusers of online public access catalogs. In Table 9, percentages are given for the frequency of library visits by OPAC users and nonusers, categorized by type of library.

Table 9. TOL-Aggregates: Frequency of Library Visits
by OPAC Users and Nonusers

User Question 48, Nonuser Question 7. I come to this library:	Type of Library (TOL) ARL-Member		Academic		Comm. College		Federal & State		Public	
	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser
Daily	37	38	31	39	30	46	11	6	4	4
Weekly	43	36	53	38	47	40	28	12	41	29
Monthly	12	12	10	11	19	8	22	17	34	30
Four times a year	5	8	4	6	3	1	17	16	12	19
Once a year	1	2	1	2	0	2	7	16	2	5
Not before today	2	4	1	4	1	3	15	33	7	13
N(cases) =	4216	1502	650	759	147	225	501	381	1938	1043

In general, OPAC users at ARL-member, academic, and community college libraries visited their respective libraries on a daily and weekly basis. OPAC users at public libraries visited the library on a weekly and monthly basis. Visits to federal and state libraries by OPAC users were unevenly distributed among the six response categories and did not display the distinct use patterns characteristic of the other four types of libraries. The greatest percentage of first-time library visitors who were also first-time OPAC users was registered at federal and state libraries. There was a significant relationship between frequency of library visits by OPAC users and type of library (chi square = 1492, degrees of freedom = 20, probability = .0001, r = .37).

Like OPAC users, OPAC nonusers at ARL-member, academic, and community college libraries visited their respective libraries on a daily and weekly basis. OPAC nonusers visited public libraries on a weekly and monthly basis (see Table 9). However, the percentages of nonuser responses in these categories were fewer than the percentages of user responses. OPAC nonusers at federal and state libraries did not show a distinct pattern of library use but visited the library less frequently than OPAC users. One third of OPAC nonusers at federal and state libraries were first-time users of that library. There was a significant relationship between frequency of library visits by OPAC nonusers and type of library (chi square = 1261, degrees of freedom = 20, probability = .0001, r = .44).

Responses from individual libraries about the frequency of library visits reflect the pattern of responses in the TOL-aggregate grouping. Table 10 shows frequency of library visits by OPAC users and nonusers at the nine libraries whose questionnaire administration was coordinated by OCLC. Responses from the five academic libraries where public access to OCLC was studied were consolidated in Table 10 and all subsequent tables and designated by the term "OCLC System."

Table 10. Individual Libraries: Frequency of Library Visits by OPAC Users and Nonusers

User question 48, Nonuser question 7. I come to this library:	Library or Library System									
	Syracuse		Ohio State		OCLC System*		Dallas Public		Iowa City	
	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser
Daily	37	28	29	45	35	36	5	2	5	4
Weekly	40	37	46	33	50	30	41	32	48	24
Monthly	13	15	15	9	9	14	31	32	32	28
Four times a year	6	12	6	8	3	8	12	16	9	18
Once a year	1	2	2	1	1	5	2	3	1	5
Not before today	3	6	2	4	2	7	9	15	5	21
N(cases) =	1279	279	1210	279	317	496	1020	278	380	136

*Includes the academic libraries at: University of Akron, Ohio University, University of Texas at Austin, and University of Texas at Dallas. State Library of Ohio results are included with these four academic libraries.

OPAC users at the academic libraries of Syracuse and Ohio State, and at libraries where the OCLC system was studied (four academic and one state library, where only five user questionnaires were completed, i.e., 0.15% of the total) visited the library on a daily and weekly basis. OPAC users at the two public libraries of Dallas and Iowa City visited the library on a weekly and monthly basis. OPAC nonusers, except for those at The Ohio State University Libraries, came to the library less frequently than OPAC users. The large percentages of first-time library visitors among OPAC nonusers at Dallas and Iowa City Public might be attributed to the newness of library buildings, which attracted first-time library visitors during the survey. At each of the five survey sites, there was a significant relationship between frequency of library visits and use-nonuse of the library's online public access catalog.

3.3 FREQUENCY OF OPAC USE BY LIBRARY PATRONS

Like frequency of library visits, frequency of OPAC use displayed distinct patterns when categorized by type of library. There was a significant relationship between type of library and frequency of OPAC use (chi square = 589, degrees of freedom = 16, probability = .0001). Table 11 gives TOL-aggregate percentages for frequency of OPAC use.

Table 11. TOL-Aggregates: Frequency of OPAC Use

User question 49. I use this computer catalog:	Type of Library (TOL) ARL-member %Users	Academic %Users	Comm. Coll. %Users	Fed. & State %Users	Public %Users
Every library visit	17	11	18	27	32
Almost every visit	40	36	35	31	32
Occasionally	31	36	40	14	17
Rarely	6	8	2	5	4
Not before today	6	9	5	23	15
N(cases) =	4226	650	147	502	1942

OPAC users at ARL-member, academic, and community college libraries consulted the online public access catalog on almost every library visit or occasionally. In contrast, the majority of public library OPAC users consulted the computer catalog on every or almost every library visit. Statistics on library use (see Tables 9 and 10) show that public library patrons visited the library less frequently than academic library patrons, (i.e., on a weekly and monthly basis), but public library patrons consulted the OPAC more frequently than academic library patrons. At federal and state libraries, the majority of OPAC users consulted the computer catalog on every or almost every library visit, but nearly 25% were consulting the computer catalog for the first time. Ninety-nine percent of the users from federal and state libraries were surveyed at the Library of Congress (LC). An OPAC user study conducted at LC 15 months before the present study reported an even greater percentage (54%) of first-time OPAC users of the SCORPIO system (Pritchard, 1981).

In general, statistics for frequency of OPAC use at individual libraries reflect the type of library OPAC-use pattern. Table 12 presents frequency of OPAC use by individual library.

Table 12. Individual Libraries: Frequency of OPAC Use

User question 49. I use this computer catalog:	Library or Library System Syracuse %Users	Ohio State %Users	OCLC System %Users	Dallas Public %Users	Iowa City %Users
Every library visit	20	21	4	30	31
Almost every visit	45	40	23	28	40
Occasionally	27	28	40	17	17
Rarely	4	7	13	4	5
Not before today	4	4	20	21	7
N(cases) =	1286	1215	317	1021	379

Like the aggregate percentages in Table 11, the majority of OPAC users at Syracuse and Ohio State consulted the computer catalog on almost every library visit or occasionally. Only at academic libraries where the OCLC system was studied did OPAC use deviate from the pattern of use at academic libraries. The majority of OCLC public access users searched the OCLC system on almost every library visit or occasionally. One reason for this different use pattern is the fact that OCLC is a union catalog rather than an individual library's catalog. Library patrons most likely searched the OCLC system when they could not find an item in the library's catalog but infrequently consulted the OCLC system first in their search strategy.

The majority of OPAC users at the public libraries of Dallas and Iowa City consulted the computer catalog on every or almost every library visit. The grand opening of the newly built Central Library of Dallas during the questionnaire administration brought many new library visitors and patrons into the library; this might account for the 21% of first-time OPAC users at Dallas Public Library.

3.4 DEMOGRAPHIC CHARACTERISTICS OF SURVEYED OPAC USERS AND NONUSERS

3.4.1 Ages of OPAC Users and Nonusers

Table 13 presents TOL-aggregate age groups of OPAC users and nonusers. There is a significant relationship between type of library and age of OPAC users (chi square = 678.4, degrees of freedom = 20, probability = .0001) and between type of library and age of OPAC nonusers (chi square = 818, degrees of freedom = 20, probability = .0001).

Table 13. TOL-Aggregates: Age Groups of OPAC Users and Nonusers

User question 54, Nonuser question 10. My age group is:	ARL-Member %User	ARL-Member %Nonuser	Academic %User	Academic %Nonuser	Comm. College %User	Comm. College %Nonuser	Federal & State %User	Federal & State %Nonuser	Public %User	Public %Nonuser
19 years and under	20	23	19	22	33	21	7	7	27	12
20 - 24 years	45	50	52	53	45	52	32	30	19	19
25 - 34 years	25	20	19	17	16	15	39	28	30	28
35 - 44 years	7	4	6	5	4	6	14	17	15	16
45 - 54 years	2	2	3	2	1	4	5	8	5	10
55 and over	1	1	1	1	1	2	3	10	4	15
N(cases) =	4217	1508	650	764	147	225	505	382	1928	1052

The ages of OPAC users and nonusers are in similar proportions in each age group, with the exception of the high percentage of older adult public library nonusers (15%) in comparison with the corresponding low percentage of older adult public library users (4%), and the high percentage of young adult public library users (27%) in comparison with the corresponding low percentage of young adult public library nonusers (12%). The widespread acceptance and popularity of computer games among young adults may make them more favorably predisposed to using the OPAC and may explain, in part, the difference in OPAC use. Older adults may feel more comfortable and familiar with the traditional library catalog, or they may feel self-conscious about having to learn how to search the online public access catalog. Unfortunately, less than 2% of 8094 questionnaires were completed by OPAC users aged 55 and over; less than 6% of 3981 nonuser questionnaires were completed by OPAC nonusers aged 55 and over. Few statistical manipulations can be done with such small returns. However, focus group interviews at Dallas and Iowa City public libraries included discussions with youngsters and older adults and provided insight into the reasons for each group's level of acceptance of the online public access catalog (see also sections 5.2.1 and 5.4.3). What adults said about themselves and youngsters was particularly insightful:

- For our age group, computer is more intimidating. The conventional card catalog isn't...We are so used to the cards...since high school. (Iowa City Public, older adult light users).
- Kids have no concern about whether they are doing right or wrong. They just run up to the computer and keep trying and trying and trying. (Iowa City Public, older adult light users).
- My daughter was out of patience with my chagrin over the computer catalog. She thought I was abnormal. (Iowa City Public, adult users).

- Older people aren't quite sure how to use the computer, and your pride gets damaged when you try a new technique that you're not familiar with and you see students using it quite easily. (Syracuse, faculty light users).

The comments of reference staff, volunteer trainers, and other intermediaries reveal an awareness of the distinction between the acceptance of the computer catalog by young and old.

- Kids now have computer literacy. Faculty and older people are intimidated and embarrassed to ask. Some of their embarrassment could be vanity, i.e., "I don't want to make foolish mistakes." (Mankato State, public service and media education faculty users).
- The younger the patron is, the less fear, the older, the more fear. (Mankato State, reference staff).
- First reaction of some people is anger and then frustration when they realize card catalog is gone. When the generational shift is over, the computer catalog will easily exist on its own. Older people just don't adjust easily. (Mankato State, library graduate assistants).

Library intermediaries attributed the nonuse of the OPAC by older adults to embarrassment about making mistakes, resistance to learning, and fear. These reasons contrast with the receptivity of the young who are eager to learn how to use the online public access catalog.

Table 14 shows percentages of OPAC users and nonusers categorized by age groups. The statistics reflect the aggregate percentages, except in the case of the OCLC system, where OPAC users were older than other academic library OPAC users. Most likely, OCLC users were taking advantage of the system's union catalog capability rather than searching it as they would other online public access catalogs.

Table 14. Individual Libraries: Age Groups of OPAC Users and Nonusers

User question 54,	Type of Library (TOL)									
Nonuser question 10.	Syracuse		Ohio State		OCLC System		Dallas Public		Iowa City	
My age group is:	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser
19 years and under	24	21	15	19	5	12	29	11	20	11
20 - 24 years	45	49	48	61	31	44	15	11	27	37
25 - 34 years	20	21	28	17	42	29	31	30	36	26
35 - 44 years	8	5	6	2	14	9	14	18	13	14
45 - 54 years	2	2	2	1	7	4	6	14	2	4
55 and over	1	2	1	0	1	2	5	16	2	8
N(cases) =	1279	282	1214	281	317	497	1015	283	375	139

OPAC users and nonusers in the survey overwhelmingly represented the 20-24 and 25-34 age groups, particularly at academic libraries. The focus group interviews are both a means and a source of information about groups, such as older adults or faculty members, that this survey scarcely sampled because of the small proportion of these groups in comparison with the total population.

3.4.2 Sex and the Online Public Access Catalog

In Table 15, percentages are given for sex of OPAC users and nonusers in the CLR-aggregate data and individual libraries. With respect to the aggregate data collected from the 29 participating libraries, a significant relationship was found between sex and OPAC use-nonuse (chi square = 63.7, degrees of freedom = 1, probability = .0001). However, such a finding is misleading because on an individual library basis there was only one library, i.e., Dallas Public, where a significant relationship between sex and OPAC use-nonuse was found. Table 15 enumerates percentages for sex of OPAC users and nonusers at the five OCLC-surveyed libraries and shows surprisingly high percentages of female nonusers at Dallas Public and Iowa City Public.

Table 15. CLR-Aggregate and Individual Libraries:
Sex of OPAC Users and Nonusers

User question 55. I am:	CLR-Aggregate %User	CLR-Aggregate %Nonuser	Library or Library System Syracuse %User	Syracuse %Nonuser	Ohio State %User	Ohio State %Nonuser	OCLC System %User	OCLC System %Nonuser	Dallas Public %User	Dallas Public %Nonuser	Iowa City %User	Iowa City %Nonuser
Female	40	48	46	48	37	45	38	44	42	66	47	59
Male	60	52	54	52	63	55	62	56	58	34	53	41
N(cases) =	7367	3900	1262	275	1197	276	313	494	996	276	374	133

The analysis of focus group interviews did not provide any explanations for such differences between males and females and their OPAC use-nonuse. No interview comments implied that females were less mechanical than males, thus less predisposed to use the OPAC; in fact, the issue of gender seldom emerged in focus group interviews. Statistical comparisons between survey participants' sex and use of the library's traditional catalogs did not show that females used the traditional library catalog more frequently than males; however, responses to questions about the use of the library's traditional catalog were indicative of the comprehensiveness of OPACs' contents and the library's holdings (see section 4.5).

Statistical comparisons between questions of OPAC users' sex and frequency of OPAC use show that there were many female first-time OPAC users, especially at Ohio State, Dallas Public, and Syracuse University. Table 16 presents percentages for the sex of frequent and first-time OPAC users. Only at Iowa City Public Library (where the number of first-time users was small, i.e., n = 27) was the percentage of female frequent OPAC users greater than the percentage of female first-time users.

Table 16. Individual Libraries: Sex and Frequency of OPAC Use

User question 55. I am:	User question 49. I use this computer catalog: Syracuse Every or Most Visits	Syracuse Not Before	Ohio State Every or Most Visits	Ohio State Not Before	OCLC System Every or Most Visits	OCLC System Not Before	Dallas Public Every or Most Visits	Dallas Public Not Before	Iowa City Public Every or Most Visits	Iowa City Public Not Before
Female	46	55	35	71	38	44	39	51	47	41
Male	54	45	65	29	62	56	61	49	53	59
N(cases) =	816	53	731	51	85	62	577	213	263	27

Should such a trend toward female first-time users continue, the percentages of male and female OPAC users might equalize in the near future. One possible conclusion from statistics on sex and OPAC use-nonuse is that a greater percentage of males will consult the OPAC upon its introduction to the library, but that females will "catch up" as time goes on.

3.4.3 Academic Background of Survey Participants

Table 17 gives percentages for the highest grade completed by survey participants. These figures are most informative when categorized by type of library.

Table 17. TOL-Aggregates: Highest Grade Completed by OPAC Users and Nonusers

User question 56, Nonuser question 12. Mark your current or highest educational level:	Type of Library (TOL) ARL-Member %User	%Nonuser	Academic %User	%Nonuser	Comm. College %User	%Nonuser	Federal & State %User	%Nonuser	Public %User	%Nonuser
Grade school	1	1	1	1	0	1	1	1	2	2
High school	3	3	1	4	17	6	4	9	26	18
Some college	53	59	67	70	77	82	22	30	28	35
College graduate	43	37	31	25	6	11	73	60	44	45
N(cases) =	4204	1508	649	763	145	225	505	379	1923	1048

The majority of user and nonuser respondents from ARL-member and academic libraries were college students or graduates. The majority of community college user and nonuser respondents were college students. Respondents from federal and state libraries were principally college students or college graduates. At public libraries, the largest percentage of OPAC users and nonusers were college graduates, but there were also large proportions of high school and college students. Table 18 shows individual library percentages for highest grade completed by survey participants.

Table 18. Individual Libraries: Highest Grade Completed by OPAC Users and Nonusers

User question 56, Nonuser question 12. Mark your current or highest educational level:	Library or Library System									
	Syracuse		Ohio State		OCLC System		Dallas Public		Iowa City	
	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser
Grade school	1	1	1	1	1	1	1	1	1	3
High school	2	7	2	3	1	5	30	19	15	15
Some college	54	56	54	75	27	52	26	32	32	32
College graduate	43	36	43	21	71	42	43	48	52	50
N(cases) =	1275	282	1205	280	317	496	1008	283	377	137

In general, individual library statistics on highest grade completed reflect the percentages of the TOL-aggregate data in Table 17. The only deviation is for the OCLC system, where over 70% of the user respondents were college graduates in comparison to less than 50% at other academic and ARL-member libraries. It has already been suggested in a discussion of frequency of OPAC use (see section 3.3 and Table 12) that users of the OCLC system were taking advantage of the system's union catalog capability. These OCLC system users might also have been engaged in long-term research, e.g., publications, dissertations, theses, current awareness, etc., which is characteristic of graduate students and faculty who sometimes require a more sophisticated library research tool than a local catalog. In contrast, undergraduates' information needs are usually more immediate because they are constrained by the length of quarters or semesters; thus, undergraduates probably utilize library resources that give them more immediate access to library materials.

University affiliation was recorded for user and nonuser survey participants at all institutions except federal, state and public libraries. Table 19 gives CLR-aggregate and individual academic library percentages for OPAC users' and nonusers' university affiliations. More nonusers than users were undergraduate students in both the CLR-aggregate and individual library statistics.

Table 19. CLR-Aggregate and Individual Academic Libraries: Present Affiliation of OPAC Users and Nonusers

User question 59, Nonuser question 15. My present affiliation with this college or university is:	CLR-Aggregate		Syracuse		Academic Library Ohio State		OCLC System	
	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser
Undergraduate	60	71	56	66	60	84	32	68
Graduate	25	18	28	19	29	13	48	25
Faculty	4	1	4	1	3	0	12	1
Staff	3	1	5	2	3	1	0	0
Other	8	9	7	12	5	2	8	6
N(cases) =	4751	2416	1182	260	1126	270	285	397

University affiliation of Syracuse and Ohio State OPAC users reflected the CLR-aggregate percentages for academic libraries. University affiliation of Syracuse and OCLC-system nonusers reflected the CLR-aggregate figures. Use of the OCLC system by graduates and faculty was noticeably greater than use of local library computer catalogs by graduates and faculty at Syracuse or Ohio State Universities, and might be attributed to the OCLC system's union catalog capability and long-term information needs of graduates and faculty.

There was a large percentage of nonusers who were undergraduates at Ohio State; this was a surprising figure since all OSU undergraduates for the past five years have been required to enroll in a Library Instruction Program (LIP) that includes an exercise in the use of the library's OPAC. Perhaps undergraduates learned to use the system and "dropped out" as OPAC users when their course-related activities did not require library catalog searching. Thus, when data collectors asked undergraduate "nonusers" whether they had ever used the OPAC in an attempt to screen out users from the nonuser questionnaire administration, these undergraduates did not consider their use of the OPAC during the LIP, and they accepted a nonuser questionnaire to complete.

OPAC users and nonusers at academic libraries represented a variety of academic fields. CLR-aggregate and individual academic library percentages are enumerated in Table 20. The individual library percentages in Table 20 are akin to the central and campus libraries where data collection took place. For example, the centralized main library at Syracuse University was the principal data collection site. It contains the humanities, business and social sciences collections; thus, over 50% of the user and nonuser respondents came from these subject areas. Questionnaire administration was not conducted at the university's science, engineering, mathematics, education, and law libraries or at the nearby state university medical library. At Ohio State, over two-thirds of the completed user and nonuser questionnaires were completed at the Main Library; the remaining third were completed at the Agriculture, Commerce, Education, Fine Arts, and Pharmacy Libraries. Therefore, proportions of respondents were more equally distributed among the response categories. The data in Table 20 describe respondents' subject areas rather than point out differences between or among libraries.

Table 20. CLR-Aggregate and Individual Academic Libraries: Areas of Study of OPAC Users and Nonusers

User question 57, Nonuser question 13. The category that describes my academic area is:	CLR-Aggregate		Academic Library Syracuse		Ohio State		OCLC System	
	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser
Arts and Humanities	26	15	32	25	23	17	28	14
Physical/Biological Sciences	12	12	5	12	13	10	9	13
Social Sciences	18	13	18	9	13	4	22	15
Business/Management	13	22	17	20	13	31	11	24
Education	5	5	6	4	6	6	11	5
Engineering	12	15	8	13	16	15	7	14
Medical/Health Sciences	6	8	3	7	10	12	4	7
Law	2	3	3	4	1	1	0	2
Major not declared	3	5	3	2	3	2	2	4
Interdisciplinary	3	2	5	4	2	2	6	2
N(cases) =	4856	2394	1201	258	1172	270	298	404

3.5 SUMMARY OF FINDINGS

Differences in frequency of library visits were found between library patrons and the types of libraries they visited and between OPAC users and nonusers. OPAC users at public libraries and federal and state libraries visited the library less often than OPAC users at academic libraries. The former used the library's OPAC on every or almost every library visit, whereas the latter used the library's OPAC on almost every library visit or occasionally. Thus, OPAC use was not an everyday task of users at any of the types of libraries or individual libraries surveyed.

There was a significant relationship between the age groups of patrons and type of library. The majority of questionnaire respondents among all types of libraries represented the 20-24 and 25-34 age groups. Few older adults completed user or nonuser questionnaires; this was probably due to the relatively small number of such library patrons in the total library patron population. Thus, the questionnaire method may not be suitable for obtaining information about older adults. Focus group interviews provided an opportunity to hear from older adults, who revealed interesting insights into their perceptions of and attitudes toward OPACs and special needs. Interview comments from older adults also brought to light their intimidation by the OPAC and their perception of youngsters' flexibility, eagerness, and receptivity toward the OPAC. Focus group interviews were both a means and source of information about groups, such as older adults or faculty members, that the survey scarcely sampled because of the small proportion of these groups in comparison to the total population. The focus groups also included youngsters up to age 14 and library staff to obtain information from groups that were not covered in the survey.

Comparisons between OPAC users and nonusers show that a larger proportion of nonusers was female. Statistics from Syracuse, Ohio State, OCLC system, and Dallas Public indicate that there were more female than male first-time OPAC users. Should such a trend toward female first-time use continue, the percentages of male and female OPAC users might equalize in the near future.

Percentages for the highest grade completed by survey participants show little difference between users and nonusers of OPACs at individual libraries or types of library. The majority of academic library patrons were in college; public library and federal and state library patrons were college graduates. OCLC-system users were chiefly college graduates. The majority of academic library patrons at Syracuse and Ohio State were undergraduates. A greater percentage of faculty members used the OCLC system than the OPACs at Syracuse and Ohio State. A possible reason for differences between OCLC users and Syracuse and Ohio State users is that the former are taking advantage of OCLC's union catalog and interlibrary loan capabilities in view of their long-term information needs.

4.0 SEARCHING THE ONLINE PUBLIC ACCESS CATALOG

4.1 INTRODUCTION

Surveyed OPAC users gave responses to questions about the search they had just completed at the online public access catalog. This section covers users' responses to questions about the purpose of the search, the main focus of their academic work (i.e., at academic libraries), the types of information they had just entered into the computer catalog, and the end result of the search. From users' responses, a general picture of their most recent OPAC search emerged.

4.2 PURPOSE OF THE ONLINE SEARCH

There was a significant relationship between the purpose of users' most recent computer catalog search and the type of library at which they had conducted the search (chi square = 1665.4, degrees of freedom = 12, probability = .0001). Table 21 lists aggregate percentages of search purposes categorized by type of library. At ARL-member, academic, and community college libraries, OPAC users' search purposes were related to academic course work. In contrast, personal interest was the chief purpose of public library searchers. OPAC users at federal and state libraries used the computer catalog for a variety of purposes.

Table 21. TOL-Aggregates: Purpose of Most Recent OPAC Search

User question 4. I need this information for:	%ARL-Member	%Acad.	%Comm. Coll.	%Fed. & State	%Public
	Type of Library (TOL)				
Personal interest (includes 4a, b, d, e, k)	33	30	32	27	64
Class-related purposes (includes 4f, g)	45	50	58	25	21
Advanced research (includes 4h, i)	11	9	5	21	4
Job-related purposes (includes 4c, j)	11	11	5	27	11
N(responses) =	7765	1165	302	939	3669
N(cases) =	4470	658	154	523	1994

Individual libraries' statistics on OPAC users' search purposes show similar patterns of response with regard to type of library. As shown in Table 22, users' purposes at the public libraries of Iowa City and Dallas were to find personal-interest library materials; users' purposes were related to academic course work at the academic libraries at Syracuse and Ohio State, and the academic libraries where the OCLC system was used. In contrast to users at Syracuse and Ohio State, many OCLC-system users were involved in advanced research. The OCLC system is well suited for research because of its holdings information and union catalog and interlibrary loan capabilities.

Table 22. Individual Libraries: Purpose of Most Recent OPAC Search

User question 4. I need this information for:	Library or Library System				
	%Syracuse	%Ohio State	%OCLC System	%Dallas Public	%Iowa City
Personal interest (includes 4a, b, d, e, k)	27	37	30	62	74
Class-related purposes (includes 4f, g)	53	43	32	22	16
Advanced research (includes 4h, i)	8	11	19	4	2
Job-related purposes (includes 4c, j)	12	9	19	12	8
N(responses) =	2249	2189	601	1831	758
N(cases) =	1305	1234	328	1041	400

OPAC users at academic libraries completed a survey question that classified them by their academic affiliation. A comparison of OPAC users' academic affiliations with the purposes of their most recently completed search showed that certain groups of academic respondents did not chiefly search the OPAC for course-related purposes (see Table 23). Among undergraduates, course-related purposes ranked first; few undergraduates searched the OPAC for advanced research or job-related purposes. In contrast, faculty members' purposes were job-related, rather than course-related. More graduate students and faculty consulted the computer catalog for the purpose of advanced research than did undergraduates.

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Table 23. Individual Academic Libraries: Purpose of Most Recent OPAC Search by Academic Affiliation

User question 4. I need this information for:	OCLC-Aggregate	Undergraduates			Graduates			Faculty		
		Syracuse	Ohio State	OCLC	Syracuse	Ohio State	OCLC	Syracuse	Ohio State	OCLC
Personal interest	31	27	41	37	20	26	23	25	29	25
Class-related purposes	47	65	52	51	51	41	32	6	17	5
Advanced research	10	3	2	6	16	22	28	23	23	27
Job-related purposes	12	5	5	6	13	12	17	46	31	43
N(responses) =	5039	1099	1163	161	591	596	265	93	70	63

OPAC users and nonusers at academic libraries were asked about the main focus of their academic work. Responses indicate that a greater proportion of OPAC nonusers than users was involved in course work (see Table 24). It is likely that nonusers involved in course work relied on personal copies of textbooks and used the library as a quiet study area and a source of reserve materials; thus, they had little need to consult the online public access catalog. OPAC users were principally involved in course work in the aggregate statistics and individual library statistics of Syracuse and Ohio State Universities, where the majority of respondents were undergraduates. OPAC users of the OCLC system were equally involved in course work and research.

Table 24. CLR-Aggregate and Individual Academic Libraries:
Main Focus of Work

User question 58. Nonuser question 14. The main focus of my academic work is:	CLR-Aggregate %User	CLR-Aggregate %Nonuser	Syracuse %User	Syracuse %Nonuser	Ohio State %User	Ohio State %Nonuser	OCLC System %User	OCLC System %Nonuser
Coursework	61	76	63	72	62	87	43	69
Teaching	8	5	7	5	9	4	14	5
Research	31	19	30	23	29	9	43	26
N(responses) =	5828	2673	1457	288	1440	287	402	479
N(cases) =	4789	2402	1179	254	1163	269	292	404

4.3 TYPE OF INFORMATION ENTERED INTO THE COMPUTER CATALOG

The first three questions in the user survey asked about the type of information OPAC users brought to and entered into the computer catalog and the type of materials they were trying to find. It was hoped that the analysis of these questions would provide insight into subject and known-item searching by OPAC users. Unfortunately, multiple responses to these initial three questions were allowed. This confounded the analysis of the results. For example, Question 3. reads as follows:

3. I searched for what I wanted by: (Mark all that apply)

   a. Complete author's name
   b. Part of an author's name
   c. Complete title
   d. Part of a title
   e. Topic word(s)
   f. Subject heading(s)
   g. Complete call number
   h. Part of a call number

Following the directions of the survey question, two OPAC users, one who searched 13 authors' complete names and one who searched one author's complete name, marked one category, i.e., 3A, or "complete author." An OPAC user who searched for one item using the system's author/title search capability (available in the OCLC system, Syracuse's SULIRS, Ohio State's LCS, and Dallas Public's LSCAN), marked two categories, i.e., 3A and 3C, or 3B and 3D, or combinations thereof depending upon the particular system. Likewise, an OPAC user who searched for two items using the system's author search capability to retrieve the first item and the system's title search capability to retrieve the second item also marked two categories, i.e., 3A and 3C, or 3B and 3D, or combinations thereof. Consequently, the first three survey questions did not differentiate between the user who performed more than one search using one access point and the user who performed one search using one access point, or between the user who performed more than one search using two or more access points and the user who performed one search using two or more access points.

There are two ways that reliable data can be collected on information entered into an OPAC. The first would involve online questionnaire administration in an online public access catalog that recorded transaction data and had "begin" and "end" commands (so that individual search sessions could be differentiated from one another). In this way, the machine could capture what the searcher had input to the system and connect the searcher's questionnaire responses to the transaction data. At sites where transaction data could not be collected, another method is possible. This would involve protocol analysis, i.e., the recording of a searcher's spoken thoughts, at the time of the computer catalog search, which would be followed by the searcher's completion of a questionnaire. The latter method would be most accurate for differentiating between searches that require one access point and those that require multiple access points.

Table 25 gives a general picture of the type of information OPAC users entered into the OPAC. Users' input of subject or topical information was characteristic of the public libraries of Dallas and Iowa City. A more accurate account of OPAC users' search types is presented in Volume I of this report, which covers transaction log analysis.

Table 25. Individual Libraries:
Type of OPAC Search

User question 3. I searched for what I wanted by:	Library or Library System				
	%Syracuse	%Ohio State	%OCLC System	%Dallas Public	%Iowa City Public
Complete author	20.6	22.8	32.6	20.0	22.3
Part author	9.0	8.9	16.9	6.4	4.5
Complete title	19.6	21.5	34.9	19.0	21.6
Part title	7.9	8.7	15.5	7.8	4.9
Topic word(s)	18.6	10.4	NA	17.0	17.6
Subject heading(s)	21.3	22.2	NA	27.0	26.8
Complete call number	2.6	4.8	NA	2.2	1.3
Part of a call number	0.5	0.7	NA	0.6	1.0
N(responses) =	2531	2228	561	1798	716
N(cases) =	1313	1234	309	1047	403

4.4 FINDING THE OBJECT OF THE ONLINE SEARCH

Table 26 shows the amount of material found as a result of the OPAC search. In general, fewer than 20% of OPAC users did not find the desired material. The majority of OPAC users found at least "some" of the items for which they were looking. A number of variables might have wholly or partially prevented users from finding all the material they wanted: scope and coverage of the library's holdings; comprehensiveness of the computer catalog's database with respect to the library's complete holdings; OPAC users' knowledge of the computer catalog's contents; and OPAC users' proficiency in the use of the system and its features.

Table 26. CLR-Aggregate and Individual Libraries:
Amount of Material Found in the OPAC Search

	Library or Library System					
User question 5. In this search I found:	%CLR-Aggregate	%Syracuse	%Ohio State	%OCLC System	%Dallas Public	%Iowa City Public
More than I was looking for	17	15	20	21	25	17
All that I was looking for	27	26	31	39	30	37
Some of what I was looking for	40	40	37	28	32	35
Nothing I was looking for	16	19	12	12	13	11
N(cases) =	7704	1294	1221	323	1020	393

When questions about amount of material located and frequency of OPAC use were compared, the percentage of OPAC users who had found nothing as a result of their computer catalog search helped support the notion that proficiency in the use of the OPAC system affects the amount of material retrieved. Table 27 compares amount of material found by frequent OPAC users, infrequent OPAC users, and first-time OPAC users.

More first-time and infrequent OPAC users found nothing in their searches than OPAC users who consulted the OPAC on every or almost every library visit. In some cases, the number of users responding to certain categories was small; thus, the result, i.e., the frequency of OPAC use related to amount found in online searches, is suggested from the analysis of users' survey responses but not conclusive. It was surprising that the proportion of OPAC users who found nothing was greatest among users who rarely used the OPAC instead of first-time users. However, a significant number of first-time OPAC users obtained a librarian's assistance. Thus, the librarian probably affected the search results by helping first-time users find materials (see section 7.3).

Table 27. Individual Libraries: Amount of Material Found by Frequent, Infrequent and First-time OPAC Searchers

User question 49. I use this computer catalog:

User question 5. In this search I found	Syracuse			Ohio State			OCLC System			Dallas Public			Iowa City Public		
	Every or most Visits	Rarely	Not before Today	Every or most Visits	Rarely	Not before Today	Every or most Visits	Rarely	Not before Today	Every or most Visits	Rarely	Not before Today	Every or most Visits	Rarely	Not before Today
More than I was looking for	14	14	17	20	9	15	15	30	32	23	21	29	16	24	35
All that I was looking for	27	14	25	35	28	25	38	30	36	32	24	25	40	6	35
Some of what I was looking for	44	33	28	36	34	45	43	20	21	35	37	27	37	41	19
Nothing I was looking for	15	39	30	9	29	15	4	20	11	10	18	19	7	29	11
N(cases) =	818	49	[illegible]3	733	76	53	84	40	62	576	38	207	261	17	26

Such a finding about the amount of material located by first-time or infrequent OPAC users supports the requirement that OPACs contain features contributing to the ease of relearning the system. The need for such features is discussed in section 7.5. Unsuccessful search results obtained by very infrequent users in comparison with successful search results obtained by very frequent users underlines the need for features of OPACs that both contribute to the ease of relearning the system and suggest alternate search strategies to the OPAC user whose search results in no retrievals (see section 6.3.4). Evidence from OPAC activity logs further supports such features of OPACs; studies show that more than one third of OPAC searches at Syracuse, Northwestern, Washington University, and the University of California resulted in no retrievals (Johnson, 1982; Kern-Simirenko, 1983).

Table 28. CLR-Aggregate and Individual Libraries: Finding Other Things of Interest

User question 7. I came across other things of interest	%CLR-Aggregate	%Syracuse	%Ohio State	%OCLC	%Dallas Public	%Iowa City Public	%Mankato St.*
			Library or Library System				
Yes	50	42	52	47	58	54	55
No	50	58	48	53	42	46	45
N(cases) =	7702	1303	1219	324	1016	394	NA

* From Matthews, 1982, p. 120.

In general, half the OPAC users found other things of interest during their online searches. Table 28 enumerates the percentages of OPAC users who found other things of interest. Except for the low percentage of Syracuse OPAC users who found other things of interest, the percentages reflect the CLR aggregate. There are a few explanations why the Syracuse percentage was lower than the others. One possible reason is the absence of alphabetical lists of subject headings, titles, or author names in response to the user's input access point, a feature that was present in the other four systems studied. However, although the Mankato State University OPAC also lacked this feature at the time of questionnaire administration, questionnaire results were not comparable to those of Syracuse. Another possible explanation is that Syracuse's OPAC database is somewhat sporadic in its coverage of the library's holdings, especially for items published prior to 1968 (Bullard, 1982). Mankato State's database contained nearly all the library's holdings at the time of the questionnaire. The third reason may be connected to the purpose of the search.

Table 29 shows that there was a significant relationship between the purpose of a search and finding other things of interest (chi square = 77.03, degrees of freedom = 3, probability = .0001). More OPAC searchers whose search purpose was to find materials for personal interest came across other things of interest than did OPAC searchers whose search purpose was course-related. The majority of Syracuse OPAC users (53%, see Table 22) consulted the OPAC to find course-related materials.

Table 29. OCLC-Aggregate: Purpose of Most Recent OPAC Search and Finding Other Things of Interest

	User Question 7. I came across other things of interest:		
User question 4. I need this information for:	OCLC-Aggregate %Yes	%No	N(responses)
Personal interest	61	39	3188
Class-related purposes	50	50	2819
Advanced research	54	46	567
Job-related purposes	55	45	929

4.5 USE OF THE LIBRARY'S TRADITIONAL CATALOG BY OPAC USERS AND NONUSERS

Only the Iowa City Public OPAC was comprehensive in its coverage of the library's holdings; however, the library's traditional catalog had been discarded, so that library patrons' only recourse was to consult the OPAC or to obtain assistance from a librarian.

Table 30. Individual Libraries:
Use of Traditional Library Catalogs by OPAC Users and Nonusers

User question 50, and Nonuser question 8. I use this library's book, card or microfilm catalog:	Syracuse		Ohio State		OCLC System		Dallas Pub.		Iowa City	
	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser
Every visit	9	10	6	3	28	11	16	12	NA	NA
Almost every visit	21	18	14	8	35	23	25	17	"	"
Occasionally	41	37	32	27	28	35	26	31	"	"
Rarely	20	25	33	43	8	19	17	18	"	"
Never	9	10	15	19	1	12	16	22	"	"
N(cases) =	1277	273	1210	277	311	497	993	277	NA	NA

Ohio State's OPAC contains short bibliographic records of the library's entire collection, but full bibliographic records (which include subject headings) are available only in bibliographic records entered into the system after June 1978. Surprisingly, Ohio State's users consulted the card catalog more frequently than nonusers (see Table 30). There was a significant relationship between OPAC use-nonuse and frequency of consulting the card catalog at Ohio State (chi square = 20.9, degrees of freedom = 4, probability = .0003).

At Syracuse, the frequency with which OPAC users and nonusers consulted the library's card catalog was similar, and both groups consulted the library's card catalog more frequently than Ohio State patrons. This may be due to the somewhat sporadic coverage of the library's holdings in Syracuse's OPAC and patrons' need to check the card catalog in comprehensive, high-recall searches.

OCLC-system users, who were typically graduate students or faculty engaged in research, consulted the library's traditional catalog more frequently than other groups. Most likely, OCLC users were performing comprehensive, high-recall searches of the library's material. Thus, they checked many of the library's resources, e.g., traditional catalog, OCLC terminal, bibliographies, etc., in the pursuit of their research. Nonusers surveyed at the five libraries where OCLC was the object of study consulted the library's traditional catalog more frequently than nonusers at Syracuse, Ohio State, and Dallas Public, and also more frequently than users at Syracuse and Ohio State. Since nonusers at these five OCLC libraries had no online access to their own library's exclusive holdings, it is not surprising that they used their respective library's catalog more frequently than users and nonusers who did have online access to their own library's exclusive holdings. There was a significant relationship between OCLC use-nonuse and frequency of consulting the library's traditional catalog at these five OCLC libraries (chi square = 68.6, degrees of freedom = 4, probability = .0001).

Results from Dallas Public were difficult to interpret because some branch libraries did not have a card, book, or microform catalog and because of the large percentage of first-time library visitors (see Table 10). In general, Dallas Public users consulted the library's traditional catalog less frequently than nonusers (chi square = 15.2, degrees of freedom = 4, probability = .0042).

The results of OPAC users and nonusers' consultation of the library's traditional catalog cannot be summarized by a general statement. For the time being, use of the traditional catalog is connected to: (1) the capability of the online system, e.g., union catalog, local library catalog, etc.; (2) the purpose of the patron's search, e.g., advanced research, course work, etc.; (3) the comprehensiveness of the online system's coverage, e.g., full bibliographic records to the library's entire collection, to part of the collection after a particular date, to sporadic holdings, etc.; and (4) combinations thereof.

4.6 SUMMARY OF FINDINGS

This section covers information about the most recently completed search by surveyed OPAC users. The purpose of OPAC searches was connected to the type of library at which the search was performed. Academic libraries were marked by searches related to course work. Personal interest characterized the search purposes of OPAC users at public libraries. OPAC users at federal and state libraries consulted the system for a variety of purposes. Purposes of OPAC searches at individual libraries were akin to the type of library aggregate pattern of responses, with the exception of the OCLC system, which was consulted more for research purposes than OPACs at other academic libraries.

Undergraduates' principal search purpose was course-related; they performed few searches for advanced research and job-related purposes. In contrast, faculty's course-related searches were few, and advanced research and job-related searches were many. The main focus of OPAC users' academic work was course work, except at OCLC-system libraries, where both research and course work were the main foci.

Multiple responses to questions about the type of information OPAC users brought to and entered into the computer catalog and the type of materials they were trying to find confounded the results. Rather than risking erroneous interpretations from such confounded data, two methods are recommended for collecting more reliable data in future studies: (1) online questionnaire administration after the completion of an OPAC search that can be captured in a transaction log; and (2) "offline" questionnaire administration after OPAC searchers' expressed thoughts are captured through protocol analysis.

With regard to the search output, fewer than 20% of OPAC users did not find the object of their search. The majority of OPAC users found at least "some" of the items for which they were looking. More very infrequent and first-time users found nothing as a result of their search than frequent users. This finding: (1) suggests that lack of proficiency in the use of the OPAC system may adversely affect retrievals; (2) supports the requirement that OPACs should contain features that contribute to the ease of relearning the system; and (3) suggests that OPACs contain features that assist online searchers with alternate search strategies when their searches retrieve nothing.

In general, 50% of OPAC searchers encountered other things of interest in the course of an online search. Finding other things of interest was related to personal interest searches, a purpose characteristic of public library OPAC users.

Use of the library's traditional catalog, particularly by OPAC users, was connected to: (1) the capability of the online system, e.g., union catalog, local library catalog, etc; (2) the purpose of the patron's search, e.g., research, course work, personal interest, etc.; (3) the comprehensiveness of the online system's coverage, e.g., full bibliographic records to the library's entire collection, to part of the collection after a certain date, etc.; and (4) combinations thereof. Should any of the first three factors change, library patrons' use of the traditional catalog would probably be affected.

5.0 TRANSITION FROM TRADITIONAL LIBRARY CATALOGS TO ONLINE PUBLIC ACCESS CATALOGS

5.1 GENERAL ATTITUDES TOWARD THE OPAC

OPAC users and nonusers were asked in the questionnaires about their general attitudes toward the computer catalogs. The majority of user and nonuser respondents had favorable attitudes toward the computer catalog, but the latter were less exuberant. There was a significant relationship between attitude toward the OPAC and OPAC use-nonuse (chi square = 487.3, degrees of freedom = 3, probability = .0001). Table 31 lists percentages for the CLR-aggregate and individual libraries regarding the question on attitude toward the computer catalog. In general, individual library percentages reflect the pattern of responses from the aggregate data.

Table 31. CLR-Aggregate and Individual Libraries:
Users' and Nonusers' Attitudes Toward OPACs

User question 9. Nonuser question 4. My general attitude toward the computer catalog is:	Library or Library System											
	CLR-Aggregate		Syracuse		Ohio State		OCLC System		Dallas Public		Iowa City Public	
	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser
Very favorable	67	46	64	34	67	40	75	49	61	54	59	48
Somewhat favorable	26	43	28	56	27	48	21	43	29	37	27	37
Somewhat unfavorable	5	9	6	9	4	10	3	7	7	7	9	12
Very unfavorable	2	2	2	1	2	2	1	1	3	2	5	3
N(cases) =	7719	3798	1298	262	1224	276	325	481	1036	270	397	133

Data in Table 31 give the general impression that OPAC users and nonusers were generally favorable toward the OPAC. At this early stage in the development of computer catalogs, few users have had the opportunity to use more than one online public access catalog. Only about 25% of the survey participants were daily or weekly users of other computer systems. Thus, the favorable attitudes that users and nonusers now express may change in time when they have more familiarity and frequent practice with other OPACs and other computer systems and have greater powers of discrimination.

Studies by Beckman (1982), Pawley (1982), Pease and Gouke (1982), and Dowlin (1980) have found that over 80% of surveyed users prefer the computer catalog to the library's traditional catalog. Moore (1981) found that library patrons preferred the online catalog to card, microfiche, microfilm, and book catalogs. Thus, research findings from a number of studies on computer catalogs have indicated that patrons currently accept online public access catalogs.

Groups of library patrons that might be expected to express unfavorable attitudes, e.g., older adults or humanities faculty members, constitute a very small proportion of the total library patron population; thus their representation in the survey was very small. Focus group interviews provided a means of determining more than patrons' attitudes toward OPACs. The interviews helped determine reasons for certain attitudes among groups with similar demographic characteristics that were the majority of survey respondents, as well as among special groups that were scarcely represented in the survey.

5.2 FAVORABLE ATTITUDES TOWARD THE OPAC

5.2.1 Searching the Computer Catalog Is Fun

Youngsters, young adults, and university students admitted that searching the OPAC was fun. In contrast, searching the card catalog was boring. The youngest focus group interview participants, a class of 6th grade parochial school students in Iowa City, were very keen about the library's computer catalog; all ten participants in this focus group interview remembered what they had been looking for and how they searched the computer catalog when asked about their most recent search. This happened in only one of 70 focus groups and shows that these youngsters were enthusiastic about the OPAC and used it frequently. Comments from youngsters, young adults, and university students about using the OPAC are as follows:

- The computer is more fun than the card catalog. (Iowa City Public, 6th grade user)
- It (searching the computer) is more fun than the card catalog. (Iowa City Public, junior high school users; and Mankato State, undergraduate users)
- I've just gone in (to the library) and played with the computer. I just typed in whatever came to my head. (Mankato State, undergraduate and graduate users)
- Computer is more fun than the card catalog; gives one enjoyment looking for a book--not boring anymore. (Dallas Public, Martin Luther King Branch, college student users)
- You can be lazy with it (the OPAC). It's more fun. Rather use computer than flip through cards. (Dallas Public, middle school users)

Library reference staff noted patrons' satisfaction with the OPAC, particularly the exuberance of youngsters toward it. Some library reference staff contrasted children's acceptance with that of adults.

- Kids love to use it (the OPAC). Resistance progresses with age. Kids want to be shown; then they'll play with it. Adults want to be reassured that they aren't going to mess up. (Dallas Public, volunteer trainers)

- Children enjoy discovery because they are not grownups. They see the whole thing as a grand adventure and toy. They will sit and push buttons and push buttons until they get what they want. (Iowa City Public, reference staff)

- We are in a PAC MAN society. Kids love the computer. Adults are intimidated by it. Adults would rather browse the shelves. (Iowa City Public, reference staff)

- I work with juvenile delinquents and I once brought them to the library. They used the computer catalog for about 45 minutes. They loved playing with the computer but they never took one book out as a result of their use of it. (Iowa City Public, adult users)

The results of this study have shown that youngsters and young adults will immediately "catch on" to the OPAC, but other, older potential users will need more attention and assistance. Section 7.1 covers types of assistance the libraries gave to OPAC users.

5.2.2 Searching the OPAC Saves Time

OPAC users' enthusiasm centered on the ability to save time by using the OPAC. This included the ability to view information that another user was viewing. Users of some OPACs cited the system's instantaneous response in comparison to the more time-consuming task of flipping catalog cards.

- Instant gratification. Just punch it in. (Syracuse University, graduate student light users)

- Easier to press a button than flip through cards. It's easier and quicker. (Iowa City Public, 6th grade users)

- I can always use the computer, whereas someone often had my card drawer. (Ohio State, undergraduate nonusers)

- Computer is quicker and easier. No more flipping through cards. (Dallas Public, volunteer trainers)

Other OPAC users cited that remaining in one place to search the library's catalog saved time. This included the ability to access the library's catalog from remote locations, e.g., campus terminals, personal computers at home, etc.

- It is easier for me to search the computer than keep bending up and down when using the card catalog. (Mankato State, undergraduate users)

- Computer is now on every floor of the library. (Syracuse University, library support staff light users)

- Don't have to walk a long way to drawers. (Library of Congress, General Reading Room reference staff)

Another time-saving aspect of the OPACs at Iowa City Public, Syracuse University, and Ohio State University was the availability of circulation information. OPAC users at these institutions felt that circulation information saved time.

- Saves time. Especially because the OPAC lets you see if a book is in. (Ohio State, undergraduate users)

- You know whether a book is on the shelf; OPAC saves time. (Iowa City Public, university library school student users)

- I can see whether the book is in the library. (Syracuse, graduate light users)

5.2.3 The OPAC Provides New Services

In focus group interviews, library patrons' favorable attitudes toward the OPAC were linked to new library services that had not been available through the traditional library catalog. Patrons' enumeration of these new services provided them with new ideas for future services. Many of the new services at the libraries listed below were suggested by patrons (see also sections 6.3.7, 6.3.8).

At Mankato State University: overnight preparation of printouts of retrieved citations; ability to search collections of other state universities through the computer catalog.

At Syracuse University: inclusion of library and floor where books are shelved in full and intermediate bibliographic displays; ability to search other campus library collections at libraries besides the main library.

At The Ohio State University: printouts of retrieved citations; Telephone Information Center, which patrons can call to have a library staff member perform an online search of the OPAC and/or renew books; mail delivery of library materials to campus offices; ability to search campus library collections other than the main library's; ability to search ERIC microfiche and State Library of Ohio collections through the computer catalog.

At Dallas Public Library: ability to search one branch's collection from another branch.

At Library of Congress: printouts of retrieved citations.

These new services were not available before the introduction of the computer catalog to the library. Focus group interview participants were quick to point out these new services and were obviously pleased by them.

5.2.4 The OPAC Provides New Features

OPAC users were favorable toward the OPAC because it provided new features that had not been available through the traditional library catalog. New features seen as an advantage by OPAC users and library staff are listed below with the systems studied.

Component word searching of both titles and subject headings: Mankato State, Syracuse, Library of Congress' MUMS.

Author/title search: Mankato State, Syracuse, Ohio State, Library of Congress' MUMS.

Explicit or implicit Boolean operators: Mankato State, Syracuse, Library of Congress' MUMS and SCORPIO.

Limit commands: Mankato State, Library of Congress' MUMS and SCORPIO.

Call number or shelflist search: Syracuse, Ohio State.

Limited knowledge of spelling: Iowa City Public, Library of Congress' SCORPIO.

Some of the features listed above were available to OPAC searchers in the systems studied but were not cited by OPAC searchers as advantages over traditional library catalog searching, e.g., call number searches at Dallas or Iowa City Public. Either respondents were not familiar enough with the use of the OPAC to mention such features, or in the context of the particular OPAC studied or the patrons' OPAC searches, such features were not especially useful. Frequencies of command usage gleaned from transaction logs (see Volume I) indicate that limits or Boolean operators (features associated with "advanced" searching) were used infrequently.

The reasons for library patrons' favorable attitudes toward the online public access catalog were: (1) the OPAC is fun to use; (2) the OPAC saves time; (3) the OPAC provides new services; and (4) the OPAC provides new and previously unavailable features. The last two reasons might have been connected to frequency of OPAC use; i.e., frequent OPAC users were more familiar with the system's services and features than infrequent OPAC users.

5.3 VARIABLES RELATED TO OPAC USERS' ATTITUDES

A comparison was made between survey responses about users' general attitudes toward the OPAC and their ability to find other things of interest during their latest search. Table 32 shows that there was a significant relationship between users' general attitudes toward the OPAC and their ability to find other things of interest (chi square = 327.2, degrees of freedom = 3, probability = .0001, r = .21). The percentage of users who did not find other things of interest and were unfavorable toward the OPAC was over three times greater than the percentage of users who did find other things of interest but were also unfavorable toward the OPAC. Similar results were found at the individual libraries studied.

Table 32. CLR-Aggregate and Individual Libraries: Users' Attitudes Toward OPACs Compared with Finding Other Things of Interest

User question 9. My overall or general attitude toward the computer catalog is:	User question 7. I came across things of interest other than what I was looking for:											
	CLR-Aggregate		Syracuse		Ohio State		OCLC System		Dallas Public		Iowa City Public	
	%Yes	%No	%Yes	%No	%Yes	%No	%Yes	%No	%Yes	%No	%Yes	%No
Very favorable	76	58	76	56	73	62	80	71	71	48	69	45
Somewhat favorable	21	29	20	34	24	30	19	22	26	32	27	28
Somewhat unfavorable	2	8	3	8	2	6	0	6	2	13	3	17
Very unfavorable	1	4	1	2	1	2	1	1	1	7	1	10
N(cases) =	3791	3824	543	748	626	581	151	170	582	420	210	178

Users' general attitudes toward the OPAC were related to their attitudes toward the library's other catalogs, i.e., card catalog, microform catalog, etc. (chi square = 1754.3, degrees of freedom = 6, probability = .0001). Table 33 shows that over half the OPAC users who felt that the OPAC was worse than the library's other catalogs also had unfavorable attitudes toward the OPAC. Percentages for individual libraries are not given in Table 33 because they reflect the aggregate percentages.

Table 33. OCLC-Aggregate*: Users' Attitudes Toward OPACs Compared with the Library's Other Catalogs

User question 9. My overall or general attitude toward the computer catalog is:	User question 10. Compared to the card, book, or microfiche catalog in this library, the computer catalog is: OCLC-Aggregate %Better	%About the same	%Worse
Very favorable	80	36	8
Somewhat favorable	18	53	35
Somewhat unfavorable	1	10	34
Very unfavorable	1	1	23
N(cases) =	2685	619	265

*Iowa City Public excluded because there was no catalog other than OPAC.

Users' general attitudes toward the OPAC were also related to their frequency of OPAC use (chi square = 72.03, degrees of freedom = 3, probability = .0001). Table 34 presents OCLC-aggregate percentages for users' attitudes, categorized by two types of frequency of use. Only 6% of frequent users were unfavorable toward the OPAC, whereas 21% of infrequent users were unfavorable.

Table 34. OCLC-Aggregate: Users' Attitudes Toward OPACs Compared with Their Frequency of OPAC Use

User question 9. My overall or general attitude toward the computer catalog is:	User question 49. I use this computer catalog: OCLC-Aggregate %Every or Most Library Visits	%Rarely
Very favorable	68	47
Somewhat favorable	26	32
Somewhat unfavorable	4	14
Very unfavorable	2	7
N(cases) =	2489	224

Variables that affected users' attitudes toward the OPAC included: (1) finding other things of interest during the OPAC search; (2) a comparison of the OPAC with the library's other catalogs; and (3) frequency of OPAC use.

5.4 UNFAVORABLE ATTITUDES TOWARD THE OPAC

A statistical relationship was found between attitude toward the OPAC and OPAC use-nonuse (see Table 31). In general, nonusers were "cooler" toward the OPAC than their user counterparts. Table 35 lists nonusers' reasons for not using the OPAC. These were calculated from questionnaire responses.

Table 35. CLR-Aggregate and Individual Libraries: Reasons for OPAC Nonuse

	Ranks* of Responses†					
Nonuser question 1. I have not used the computer catalog up to now because:	CLR-Aggregate	Syracuse	Ohio State	OCLC System	Dallas Public	Iowa City Public
I have not taken training sessions on how to use it	1	1	2	1	2	3
I have not had time to use it	2	2	3	3	1	4
I have not needed to use any library catalog recently	3	3	1		4	2
I did not know there was a computer catalog	4			2	3	
I am a visitor or infrequent user of this library	5	4	4			1
I do not know where it is	6			4		
The card catalog is easier to use	7	(5)	(5)	(7)	(6)	NA
I do not like to use computers	8	(7)	(6)	(10)	(10)	(6)

Table 35. (cont.) CLR-Aggregate and Individual Libraries: Reasons for OPAC Nonuse

	Ranks* of Responses†					
Nonuser question 1. I have not used the computer catalog up to now because:	CLR-Aggregate	Syracuse	Ohio State	OCLC System	Dallas Public	Iowa City Public
There has not been any staff at the terminals to assist me in using it	9					
The card catalog contains more of the information I need	10					
The terminals were all in use when I wanted to use it	11					

*1 was the reason selected most frequently; 12 was the reason selected least frequently.
†Ranks enclosed in parentheses are discussed in section 5.4 as reasons many focus group interview participants had not yet used the OPAC.

When ranked, nonusers' primary reasons for not using the computer catalog were: (1) the need to take training sessions; (2) time to learn how to use the OPAC; and (3) no need to use any library catalog. Reasons such as "the card catalog is easier to use" or "dislike of computers" did not rank very highly. In focus group interviews, however, such reasons emerged not only as reasons for OPAC nonuse, but also as reasons for patrons' unfavorable attitudes toward the OPAC.

When responses to the question about reasons for OPAC nonuse were compared to how likely nonusers were to use the OPAC in the future, two reasons emerged for OPAC nonuse. One third to one half of nonusers were unlikely to consult the OPAC in the future because of dislike of computers or because the card catalog was easier to use. Table 36 ranks the response categories in Table 35 by the percentages of nonusers who are unlikely to use the OPAC in the future. Thus, the list of reasons for OPAC nonuse in Table 36 shows that only two reasons for OPAC nonuse are very important because nonusers who checked these categories were much less likely than other nonusers to consult the computer catalog in the future.

Table 36. OCLC-Aggregate: Likelihood of Nonusers' Future OPAC Use Compared with Reasons for Nonuse

Nonuser question 1. I have not used the computer catalog up to now because:	Nonuser question 5. How likely are you to use the computer catalog in the future? OCLC-Aggregate %Unlikely	%Likely	N(responses)
I do not like to use computers	50	50	121
The card catalog is easier to use	36	64	238
I have no need to use any library catalog	28	72	533
I have not taken training sessions on use	26	74	669
I have not had time to use it	26	74	580
I do not know where it is	25	75	272
There has not been any staff at the terminals to assist me	23	77	129
I did not know there was a computer catalog	22	78	439
The terminals were all in use	21	79	57

The following sections highlight reasons why interview respondents were unfavorable toward the online public access catalog.

5.4.1 Familiarity with and Trust in the Traditional Library Catalog

OPAC users and nonusers were accustomed to consulting the traditional library catalog, had confidence in their ability to use it, and had trust in the information there. Unfavorable attitudes toward the OPAC were expressed by individuals who were familiar and comfortable with searching the traditional catalog. Comments about traditional catalog searching were elicited primarily from infrequent users or nonusers of the OPAC and are enumerated below:

- Felt more secure using the card catalog, probably because I had more experience. (Syracuse, library support staff light users)
- Used cards since elementary school, so I feel more comfortable using them. (Syracuse, undergraduate nonusers)
- We need to transfer our faith from the card catalog to the computer. If I could trust the system like I trust Reader's Guide to find the

articles I need, then I'd use the computer. (Mankato State, faculty users)

- In cards, you ran into other things you were interested in. I was in more control. I can make it (i.e., cards) do what I want... With the cards I know what I want to do. (Iowa City Public, older adult light users)

- We go to the card catalog because we're back with mommy and we are unfamiliar with the computer. (Ohio State, faculty nonusers)

- At least with the card catalog we know how to use it. That is what we used when we were in school. (Dallas Public, adult nonusers)

Trust in the traditional catalog's information versus the computer catalog's information had two facets: (1) patrons lacked trust in the accuracy of the OPAC's information; and (2) patrons lacked confidence in their ability to match the information in the OPAC. Examples of patrons' comments about trust in the catalog's information follow:

- Card catalog is more accurate. (Syracuse, faculty users and library support staff light users).

- It's really frustrating when it doesn't work out the way I wanted it. It (the computer) just wasn't doing what I wanted it to do and you can get very, very upset because it's like man against machine. It knows how to do it, and I don't know how to do it and I don't know what it's doing ... it's doing its own thing. (Library of Congress, legislative intern nonusers)

- Regardless of trying all ways to find an item, I still don't feel 100% certain when I can't find an item. If I did the same search in the card catalog, I was 100% certain. (Ohio State, catalog information desk staff)

Building patrons' trust in the online public access catalog is an ongoing task that the public services staff must handle before introducing the OPAC, when the OPAC is first introduced, and afterwards. Four points should be made clear to library patrons about the OPAC: (1) why the library has chosen to convert from the traditional library catalog to online services; (2) comparison of the traditional library catalog's contents with the computer catalog's contents; (3) that assistance is available for learning how to use the OPAC; and (4) benefits of the OPAC. Such points could be covered in newspaper publications before and after the introduction of the OPAC to the library, in training sessions or workshops on OPAC use, in orientation tours for incoming patrons, and in brochures or information sheets about library services. These four points became clear as a result of experience in focus group interviews with library patrons and staff who were comfortable with the traditional library catalog and resented the deployment of the OPAC in the library. They asked the interviewers why the library had terminated or planned to terminate the traditional library catalog in favor of the computer catalog.

A number of library patrons became alienated from the OPAC because they had failed to find needed library material the first time they used the OPAC. Focus group interview participants related the following experiences:

- I don't have any computer background, and I tried the computer catalog; I thought I was either doing something wrong or the library didn't have the book, so I never used the computer catalog after that. (Syracuse, undergraduate nonusers).
- I only used the computer catalog once (I'm a junior) and I used it with a friend. By myself I get confused. I jammed it once and got so upset that I never used it again. (Ohio State, undergraduate nonusers)
- Computer doesn't do mechanically what I want it to do. I find myself taking out a brochure and experimenting and it still doesn't do what I want it to so I just disregard it. (Mankato State, faculty users)

The most successful way of building patrons' trust in OPACs was ensuring that patrons' first searches were successful. Public services staff related experiences of a tentative first-time OPAC user whom they assisted in finding library materials:

- Most patrons find LCS intimidating; until you (the librarian) break the ice, patrons are intimidated by the mere presence of the machine. But once you show them, they become fast friends with the machine. (Ohio State, catalog information desk staff)
- I tried to explain to a 50-year old volunteer how to use the computer; she was afraid at first. After I showed her, she was very positive about computers. A lot of people have been screwed up by computers, e.g., bills, and they think the same thing will happen. (Dallas Public, reference staff)
- If there's a person (librarian) right there when patrons do their first search, I think it helps greatly. If they succeed, it's great; if they fail, they feel supported. (Iowa City Public, reference staff)

The phrase "you (the librarian) break the ice" sums up the most successful way of building the patron's trust in the OPAC and ensuring that the patron consult the OPAC in the future.

Obviously, such assistance might require extra public services staff near OPAC terminals during the initial months of OPAC services and at times when many first-time users are expected. The Library of Congress opened a Computer Catalog Center for library patrons where reference staff chiefly handle inquiries about OPAC use. Iowa City Public and Dallas Public relied on the services of volunteer trainers who were stationed at public terminals and handled patrons' inquiries about OPAC use. These and other ways of "breaking the ice" are also covered in section 7.4.2.

5.4.2 Fear of Computers or Mechanical Devices in General

Few OPAC users and nonusers accessed a computer system other than the library's computer catalog at least on a monthly basis (see Table 68). In general, half the nonusers and one third of the users had never used a computer system other than the library's online public access catalog. Because such a large proportion of library patrons have had little exposure to computer systems, they may fear computers. The following comments are from library patrons who were nonusers or light users of the online public access catalog:

- I feel alienated by computers...I walk along High St. and everybody is playing with those stupid computers and computer games. I am alienated because there is no communication between people...and I resent that bitterly. When the computer invades something as sacred as the library catalog, it really ticks you off. (Ohio State, graduate student nonusers)

- I'm non-mechanical; when my car breaks down, I take it to the repair shop. (Ohio State, graduate student nonusers)

- We're afraid right now because we don't know the proper way to push buttons and ask it properly. (Library of Congress, study facility patron nonusers)

- When I use the computer, I think that something technical might happen; then I wouldn't get all the information I need. (Mankato State, faculty light users)

Library staff who interacted with patrons using the computer catalog also noted patrons' apprehension or fear of the computer catalog. Some of their remarks about patrons' fear are:

- People are afraid it's going to blow up on them. (Dallas Public, volunteer trainers)

- A lot of people aren't mechanical. They won't even use the copy machine. (Dallas Public, reference staff)

- Patrons come with the attitude "this dumb thing (terminal) doesn't work and I just can't use it." And it's real hard to overcome. (Iowa City Public, reference staff)

- Patrons sometimes regard the computer as an adversary to be conquered rather than a tool. They see the computer as a bad guy. (Ohio State, informal instruction library staff)

- Some patrons are afraid of computers. A law professor said to me, "Please don't talk computers." (Ohio State, Telephone Information Center staff)

- Some people expect to have to write in FORTRAN. (Library of Congress, General Reading Room reference staff)

Connected to their fear of computers was patrons' feeling that they needed good typing skills to consult the computer catalog. Those patrons who overcame this barrier and used the catalog were usually convinced after their initial use of the OPAC that good typing skills were not required. Of course, the chief problem was getting patrons to ignore their fear of the computer long enough to interact with the system. Then they would learn that good typing skills were not necessary.

Library patrons' fear and apprenension may dissipate as the use of computers in everyday living becomes commonplace; in the meantime, a variety of user aids is suggested to accommodate the variety of personal learning styles among library patrons, such as: (1) individualized instruction (on demand or by appointment); (2) volunteer trainers or public service staff posted at OPAC terminals to handle inquiries about OPAC use; (3) online instruction available from the OPAC itself; and (4) free manuals or brochures, etc. Section 7.1 and 7.4.2 cover user aids and staff assistance in greater detail.

5.4.3 Reluctance to Learn How to Use the OPAC

Some focus group participants expressed dismay with the online public access catalog because it was yet another area of university life that they had to learn about. The aggregate responses to the nonuser questionnaire show that respondents' second reason for not using the OPAC was lack of time to learn how to use it. Comments were elicited from OPAC users and nonusers concerning the burdensome need to learn how to use the OPAC:

- I feel that it's one more thing that I have learn...there are so many other things I'd like to learn or need to learn by a certain date, pressing things, that I don't want to sit in some course to learn how to use the computer. (Ohio State, graduate nonusers)
- People are afraid of it (the computer catalog) at first. They're afraid because of their own lack of knowledge...You think you have to take a computer science course to learn how to use it. (Mankato State, undergraduate users)

Patrons who are "burned out" on learning will probably not try to learn how to use the OPAC until the last moment before a report or take-home exam is due. Thus, workshops or individual OPAC instruction must be available at all times, especially on demand, and not be constrained to fall orientations at academic libraries or in the first few months of the OPAC's introduction to the library.

Especially among older adults and faculty members, concern over their lack of knowledge about the OPAC was intensified when they compared themselves with youngsters or students. By putting off learning how to use the OPAC, their anxiety and self-consciousness increased:

- Older people aren't quite sure how to use the computer, and your pride gets damaged when you try a new technique that you're not familiar with, and you see students using it easily. Need orientation on how to use the computer so that we do not feel ill at ease. (Syracuse, faculty light users)

- We're used to the old system. Young kids and undergraduates gravitate to the computer; it's the faculty and graduate students who stay away. It's peer failure. You can't let a student see you're making a mistake. (Mankato State, faculty users)

- Some faculty wanted to learn (how to use the OPAC) late on Friday afternoons so no students would see them. (Mankato State, reference staff)

Faculty members interviewed at Mankato State, Ohio State, and Syracuse confessed to stocking personal libraries and/or sending their graduate assistants to find books rather than learning how to use the OPAC. The comments below illustrate the means that nonusers employed to put off learning how to use the OPAC:

- One Frenchman put off learning by giving perfume bottles to a reference librarian so she'd do his searches. (Library of Congress, General Reading Room reference staff)

- Professors rely on their underlings and graduate assistants to get their books for them. (Ohio State, Telephone Information Center staff)

- I will let my graduate assistant or interlibrary loan librarian do the dogwork of finding the book or using the terminal. I am insulated from the frustrations of using the terminal or trying to find the book. I have a built-in incentive not to learn. (Syracuse, faculty light users)

- Faculty are using their own personal libraries because they won't learn the computer. (Mankato State, public service and media education faculty)

In order to entice reluctant faculty members into learning how to use the OPAC, fellow faculty members and library staff who were OPAC users related that they had produced computerized bibliographies of a reluctant faculty member's professional writing or subject interests to encourage that faculty member to use the OPAC. Mankato State faculty members suggested peer teaching as a means of reaching fellow faculty.

5.4.4 Other Variables Related to Nonusers' Attitudes

There was a significant relationship between how long nonusers felt it would take to learn to use the computer catalog and their general attitude toward the computer catalog (chi square = 71.1, degrees of freedom = 8, probability = .0001). Table 37 shows that most nonusers with unfavorable attitudes toward the OPAC felt it would take over 30 minutes to learn, whereas most nonusers with favorable attitudes toward the OPAC felt it would take less than 30 minutes to learn. The OCLC-aggregate responses in Table 37 reflect responses at the individual libraries surveyed.

Table 37. OCLC-Aggregate: Attitudes Toward OPACs and Perceived Time Needed to Learn

Nonuser question 2. How much time do you think it takes to learn to use the computer catalog?	Nonuser question 4. My overall or general attitude toward the computer catalog is: %Very Favorable	%Somewhat Favorable	%Unfavorable*
15 minutes or less	48	34	30
15 - 30 minutes	23	25	19
30 minutes to 1 hour	17	23	25
1 hour to 1/2 day	5	11	6
More than 1/2 day	7	7	20
N(cases) =	637	625	139

*Unfavorable responses are consolidated into one category because of the small number of unfavorable responses.

Nonusers' attitudes toward the OPAC were also related to how difficult they thought that it would be to learn how to use the OPAC (chi square = 166.1, degrees of freedom = 4, probability = .0001). Table 38 indicates that the harder nonusers felt the computer catalog would be to learn, the more unfavorable were their attitudes.

Table 38. OCLC-Aggregate: Nonusers' Attitudes Toward OPACs and Perceived Difficulty of Learning

Nonuser question 3. How difficult or easy do you think it would be to learn to use the computer catalog?	Nonuser question 4. My overall or general attitude toward the computer catalog is: %Very Favorable	%Somewhat Favorable	%Unfavorable*
Very easy	48	24	13
Somewhat easy	42	55	41
Difficult	10	21	46
N(cases) =	643	630	142

*Unfavorable responses are consolidated into one category because of the small number of unfavorable responses.

There was a significant relationship between nonusers' attitudes toward the OPAC and the likelihood that they would use the OPAC in the future (chi square = 368.8, degrees of freedom = 9, probability = .0001). Table 39 shows that those who were unfavorable toward the OPAC were also not likely to use it in the future.

Table 39. OCLC-Aggregate: Nonusers' Attitudes Toward OPACs and Likelihood of Future OPAC Use

Nonuser question 4. My overall or general attitude toward the computer catalog is:	Nonuser question 5. How likely are you to use the computer catalog in the future? %Very Likely	%Somewhat Likely	%Somewhat Unlikely	%Very Unlikely
Very favorable	70	36	21	28
Somewhat favorable	26	56	59	44
Somewhat unfavorable	3	7	19	12
Very unfavorable	1	1	1	15
N(cases) =	525	540	231	113

The reasons for library patrons' unfavorable attitudes toward the online public access catalog are: (1) familiarity with searching the traditional library catalog and trust in its information; (2) fear of computers or mechanical devices in general; (3) reluctance to learn how to use the computer catalog; (4) embarrassment about lack of knowledge about how to use the computer catalog; and (5) general fatigue about learning new skills. Other variables related to nonusers' attitudes toward the OPAC are: (1) the time that nonusers think it takes to learn how to use the OPAC; (2) how difficult nonusers think it would be to learn how to use the OPAC; and (3) the likelihood that nonusers would use the OPAC in the future.

Several suggestions were offered with regard to building patrons' trust in the OPAC, the most important of which was publicizing the reason(s) why the library chose to convert from the traditional library catalog to the online public access catalog. Stationing public services staff or volunteer trainers near public access terminals to handle patron inquiries about OPAC searches might help to intercept patrons before their searches fail unnecessarily and to encourage patrons who are fearful or tentative about using the computer. Making workshops and individualized instruction available year-round could assist "burned-out" library patrons who would otherwise seek instruction in OPAC use only when absolutely necessary to complete a class assignment. Section 7.4.2 covers in greater detail the variety of user aids and assistance that can help library patrons overcome their fear of computers and their anxiety about making mistakes.

5.5 USERS' SATISFACTION WITH MOST RECENT OPAC SEARCH AND COMPARISON WITH OTHER CATALOGS

In general, 75% of OPAC users were satisfied with the results of their most recent search (see Table 40). Over 75% of OPAC users at individual libraries were also satisfied with their search.

Table 40. CLR-Aggregate and Individual Libraries:
Users' Satisfaction with Most Recent OPAC Search

User question 6. In relation to what I was looking for, the search was:	%CLR-Aggregate	%Syracuse	%Ohio State	%OCLC	%Dallas Public	%Iowa City Public
Very satisfactory	46	42	49	61	51	57
Somewhat satisfactory	34	35	34	25	32	30
Somewhat unsatisfactory	10	10	10	8	10	7
Very unsatisfactory	10	13	7	6	7	6
N(cases) =	7718	1298	1221	327	1027	395

Discovering other things of interest during an OPAC search was related to satisfaction (chi square = 498.1, degrees of freedom = 3, probability = .0001). Table 41 shows that nearly 75% of OPAC users were satisfied with their online search even though they did not come across other things of interest. Thus, the proportion of satisfied OPAC users who did not find other things of interest approximates the CLR-aggregate responses in Table 40, but those who did find other things expressed an even greater degree of satisfaction than the CLR-aggregate responses. The results of the comparison in Table 41 were similar at the individual libraries studied; thus, a separate table is not provided.

Table 41. CLR-Aggregate: Users' Satisfaction and Other Things Found in the OPAC Search

User question 6. In relation to what I was looking for, the search was:	User question 7. I came across things of interest other than what I was looking for: %Yes	%No
Very satisfactory	55	38
Somewhat satisfactory	35	33
Somewhat unsatisfactory	7	13
Very unsatisfactory	3	16
N(cases) =	3807	3835

Satisfaction with the most recent OPAC search was related to OPAC users' comparisons of the OPAC with the library's other catalogs, i.e., book, microform, or card (chi square = 522.5, degrees of freedom = 6, probability = .0001). Table 42 shows that most OPAC users who were not satisfied with their OPAC search also felt that the OPAC was worse than the library's other catalog.

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Table 42. OCLC-Aggregate: Users' Satisfaction Compared with the Library's Other Catalogs*

User question 6. In relation to what I was looking for, the search was:	User question 10. Compared to the card, book, or microfiche catalog in this library, the computer catalog is: %Better	%About the same	%Worse
Very satisfactory	56	35	13
Somewhat satisfactory	32	38	26
Somewhat unsatisfactory	7	15	26
Very unsatisfactory	5	12	35
N(cases) =	2671	609	262

*Iowa City Public excluded because there was no other catalog beside the OPAC.

In general, about 75% of OPAC users felt that the OPAC was better than the library's traditional catalog (see Table 43). The survey respondents whose answers deviated from the aggregate were faculty members at academic libraries. About 64% of faculty members felt that the OPAC was better than the library's other catalog. The OCLC-aggregate percentages in Table 42 reflect the pattern of responses at individual academic libraries.

Table 43. CLR- and OCLC-Aggregates: Comparison of Library Catalogs Categorized by Academic Affiliation

User question 10. Compared to the card, book, or microfiche catalog in this library, the computer catalog is:	%CLR-Aggregate	OCLC-Aggregate %Undergraduate	OCLC-Aggregate %Graduate	OCLC-Aggregate %Faculty
Better	74	80	75	64
About the same	17	16	18	22
Worse	9	4	7	14
N(cases) =	7120	1345	708	111

OPAC users and nonusers completed questions that asked them to compare the OPAC with the library's other catalog. CLR-aggregate responses and responses from individual libraries did not show that a significant proportion of nonusers felt the OPAC was worse than the library's other catalog. A large proportion of nonusers chose not to make a comparison between catalogs (see Table 44). In post-questionnaire interviews with nonusers during the pretest of the questionnaire (Markey, 1982), many respondents failed to answer comparable questions in the pilot test questionnaire (which were subsequently omitted from the final version of the questionnaire) because they felt that they did not have sufficient knowledge or experience with OPACs or computer systems to make such a comparison.

Table 44. CLR-Aggregate and Individual Libraries:
Comparison of Computer and Traditional Library Catalogs

User question 10, Nonuser question 6. Compared to the card, book, or microfiche catalog in this library, the computer catalog is:	CLR-Aggregate		Syracuse		Ohio State		OCLC System		Dallas Public	
	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser	%User	%Nonuser
Better	69	34	68	27	76	35	68	35	66	40
About the same	16	16	17	21	15	20	18	15	15	14
Equal	8	4	8	3	4	3	5	2	10	4
Can't decide	7	46	7	49	5	42	9	48	9	42
N(cases) =	7679	3618	1292	254	1215	271	322	455	1033	246

Library or Library System

5.6 CHANGE IN OPAC USERS' SEARCH HABITS

OPAC users and library staff were asked in focus group interviews how their search habits had changed since they began using the computer catalog. A number of OPAC users felt that their search habits had not changed and continued to use the OPAC as they had used the library's traditional catalog. The following comments describe how library staff and OPAC users performed bookshelf browsing of the OPAC, i.e., locating a subject in the OPAC, determining the generic number assigned to books on that subject, then going to that area in the bookshelves to browse:

- My habits haven't changed. I still browse along the shelves. (Mankato State, graduate assistant users)
- I will still find myself browsing the shelves. (Iowa City Public, university library school users)
- I still use the computer like the cards. I find a shelf where I'll browse. (Dallas Public, volunteer trainers)
- I still use the same approach when I search cards as I do the computer, i.e., go to the right floor and get the book. (Syracuse, library support staff light users)

OPAC users felt that the computer catalog took the drudgery out of searching. Online searching was quicker and more fun than traditional library catalog searching. Perhaps the fact that OPAC users viewed online searching as quicker than traditional catalog searching made them put off beginning their searches for class assignments.

- You don't dread doing a paper. (Mankato State, undergraduate users)

- Quicker. I tend to put things off longer. (Mankato State, second floor student supervisors)
- Takes the drudgery out of library searches; students enjoy doing their papers. It seems they are accomplishing something when they do research. (Ohio State, faculty users)
- We look for more books now. Read more. It's more interesting to look for a book. In the card catalog it was sort of hopeless. (Iowa City Public, 6th grade student users)
- I put off my work a little longer because the computer speeds things up. (Dallas Public, middle school student users)

Locating circulation information through the OPAC was one capability users singled out that changed their search habits. Instead of going right to the bookshelves to find books, users would check the OPAC to see if those books were actually on the bookshelf. OPAC users also cited other features of the OPAC, that are unavailable in a traditional catalog, that changed the way they searched for library materials, e.g., Boolean operators, printouts of retrieved items, limit capabilities, component word search, etc. Comments about OPAC features unavailable in traditional catalogs were specific to the library system whose online public access catalog had the particular feature:

- I can stop foot searches because I can see what is checked out. (Iowa City Public, reference staff)
- I spend more time on a question before inputting it to the OPAC; I am used to thinking in Boolean. (Library of Congress, General Reading Room users)
- I spend less time in the library. I get a printout and take it back to my desk. (Mankato State, graduate assistant users)
- I use TERM search (i.e., component word search of MARC subject-rich fields) exclusively now. I've virtually put subject headings in the back of my mind. (Mankato State, reference staff)

A number of OPAC users realized that they were able to use more approaches and/or access points with the computer catalog than with the traditional library catalog. This was due in part to the ability to remain in one place and input terms or names (as opposed to walking from one card drawer to another) or the ability to circumvent consulting the Library of Congress Subject Headings (LCSH) through the component word search allowed in some of the OPACs studied. Analyzing searches in OPAC transaction logs is one means of checking whether online public access catalog searchers' perseverance has increased over the perseverance of traditional library catalog searchers who seldom consulted more than two access points per search (Markey, 1980). Users' comments about perseverance are as follows:

- It is so easy to just sit there, and everything is in one place--can go from A to Z right there, whereas in the cards, you must walk around. (Library of Congress, Science Reading Room users)

- It's more tempting to search a term in the computer catalog which you don't think is in LCSH. In the card catalog, you had to move around a lot. (Iowa City Public, university library school users)

- I consolidate many searches into one session. In the card catalog, I'd get one book, go back and use the catalog, get another book, go back and use the catalog, etc. (Iowa City Public, adult users)

- I check out different angles; maybe something that's far-fetched just to see if it's in the catalog. (Mankato State, graduate assistant users)

- I look for different things, e.g., "pets and the aging", which I would have never looked for in the card catalog because it would have been too difficult. (Mankato State, faculty users)

OPAC users and library staff members noted that their search habits had changed after using the online public access catalog. The principal changes were: (1) OPAC users enjoyed using the OPAC or researching their papers because online searching was quicker and more fun than traditional catalog searching; (2) OPAC users took advantage of features and services of OPACs that were not available in traditional library catalogs; and (3) the ability to remain in the same place and input information into the OPAC increased users' perseverance. Library staff and patrons who felt that their search habits had not changed were using the OPAC to perform bookshelf browsing searches.

5.7 SUMMARY OF FINDINGS

The responses from survey participants indicate that over 80% of users and nonusers had favorable attitudes toward the OPAC. Nonusers were less exuberant, but an overwhelming majority expressed favorable attitudes toward the OPAC. Remarks in focus group interviews identified reasons for favorable and unfavorable attitudes and the particular groups of users and nonusers who were especially favorable or unfavorable. Reasons for favorable attitudes were: (1) searching the computer catalog was more fun than searching the traditional library catalog, particularly for youngsters and young adults; (2) searching the OPAC saved time; (3) the OPAC provided new services; and (4) the OPAC provided new features that were not available in the traditional library catalog.

Variables that affected OPAC users' attitudes toward the OPAC were: (1) the ability to find other things of interest during their OPAC search; (2) their comparison of the computer catalog with the library's other catalogs; and (3) frequency of OPAC use. Patrons who had found other things of interest during their OPAC search were more favorable than those who had not found other things of interest. OPAC users who felt that the computer catalog was worse than the library's traditional catalog also tended to be unfavorable toward the computer catalog. More OPAC users who rarely used the OPAC were unfavorable toward it than very frequent users.

In general, over 80% of nonusers were favorable toward the OPAC, but their attitudes were "cooler" than their user counterparts, i.e., the majority of the former was "somewhat favorable toward the OPAC", and the majority of the latter was "very favorable toward the OPAC." When nonusers were surveyed in the questionnaire about the reasons why they had not yet used the OPAC, responses about not having taken training sessions or not having enough time were ranked first and second overall, and among the top four responses in individual library listings. Reasons such as "the card catalog is easier to use" or "I do not like to use computers" were not ranked among the top four responses and usually fell to the bottom or lower half of the ranked response listings. However, focus group interview respondents emphasized these reasons, and in statistical comparison with the questionnaire, nonusers who checked either or both of these reasons were unlikely to consult the OPAC in the future.

Focus group participants noted five reasons why they had unfavorable attitudes toward the OPAC: (1) they were familiar with and trusted the traditional library catalog and its information; (2) they were fearful of computers or mechanical devices in general; (3) they were reluctant to learn how to use the computer catalog; (4) they were embarrassed about their lack of knowledge about how to use the OPAC, especially university faculty members; and (5) they were too tired or overburdened to learn a new skill.

Building patrons' trust in the computer catalog should be an ongoing task of library staff, who must make clear to library patrons before and after the introduction of the OPAC to the library: (1) why the library chose to convert to the OPAC; (2) how the OPAC's contents differ from those of the library's traditional catalog; (3) what types of assistance for learning to use the OPAC will be (or are) available; and (4) benefits of the computer catalog. The most successful way to build patrons' trust in the OPAC is to ensure that their first search is successful; this would require trained library staff, student assistants, or volunteers available at terminal sites to handle patron inquiries about online searching.

Patrons' fear of computers will probably dissipate as the use of computers in everyday living becomes commonplace. Until that happens, a variety of user aids can assist library patrons. Patrons who are "burned out" on learning will probably not try to learn how to use the OPAC until the last moment when a class assignment is due, or, in the case of public library patrons, when they need to know how to fix something or what item to buy. Thus, workshops or individualized OPAC instruction must be available at all times, not just at fall orientation or in the first few months of the OPAC's residence in the library.

Older adults and faculty members were very self-conscious and embarrassed about their ignorance of the OPAC; some had even sought alternative methods of searching the library catalog. Library staff may have to approach them individually and tailor instruction according to the particular individual. Peer teaching by fellow faculty members was suggested by Mankato State faculty members. Enticing reluctant faculty members to make an appointment to learn or to attend a group workshop may be accomplished by the production of a printout of citations written by the faculty member or of citations relevant to the faculty member's research or teaching interests.

Statistical relationships were found between nonusers' attitudes toward the computer catalog and: (1) perceived length of time needed to learn to use the

OPAC; (2) perceived difficulty of learning to use the OPAC; and (3) likelihood of future OPAC use. These findings generally support participants' remarks in focus group interviews.

In general, 75% of OPAC users' expressed satisfaction with the results of their most recent OPAC search. When OPAC users came across other things of interest during their online searches, they expressed a greater degree of satisfaction than those who had not come across other things of interest. Over 50% of OPAC users who felt that the OPAC was worse than the traditional library catalog did not express satisfaction with the results of their most recent search. In contrast, the aggregate percentage of OPAC users who felt that the OPAC was worse than the library's traditional catalog was a mere 9%. Nearly half the nonusers responding to the survey question comparing the OPAC and the library's traditional catalog chose not to make a comparison between catalogs; post-questionnaire interviews with nonusers during the pretest of the questionnaire revealed that nonusers felt they did not have sufficient knowledge or experience with OPACs to make such a comparison.

The introduction of the OPAC resulted in the following changes to the search habits of OPAC users and library staff: (1) they enjoyed searching the computer catalog more than the traditional library catalog; (2) they took advantage of new features and services of OPACs; and (3) they noted that the ability to remain in one place and check multiple access points increased their perseverance. Library staff and patrons who admitted that their search habits had not changed were performing bookshelf browsing searches of the computer catalog.

6.0 FEATURES OF ONLINE PUBLIC ACCESS CATALOGS

6.1 REVIEW OF FEATURES IN OPACS STUDIED

System-by-system checklists of OPAC features are presented in a series of five tables (see Tables 45-49). The descriptive framework for the series of tables was drawn up by Hildreth (1982) in his features analysis of ten online public access catalogs, including the two OPACs at the Library of Congress. Hildreth's glossary (1982, pp. 221-245) should be consulted for detailed definitions of individual features.

The five OPACs covered in the series of tables are only those whose users were surveyed in OCLC's administration of the questionnaire: SULIRS at Syracuse University; LCS at The Ohio State University; LSCAN at Dallas Public Library; CLSI's PAC at Iowa City Public Library; and OCLC at University of Akron, Ohio University, State Library of Ohio, University of Texas at Austin, and University of Texas at Dallas. Positive marks ("X") in columns to the right of listed features designate OPAC(s) that make the particular feature available to public access searchers. The far left column of text has been added to the descriptive framework of the tables to identify by number those survey questions whose results are pertinent to the particular feature or have implications for the particular feature. Those features that are not preceded by numbered survey questions were not covered by any of the questions in the survey instrument.

6.1.1 Operational Control

Of the fourteen features categorized into Operational Control, only five were covered in survey questions (see Table 45). One feature, (the interrupt online output) was directly referenced in a survey question, whereas two other features (edit input and stack commands) were implied by the responses to two survey questions. Purging and saving search statements are usually associated with Boolean searching, but none of the systems studied had purge or save search statement capabilities.

Table 45. Operational Control: Checklist of Command Capabilities

Pertinent User Survey Questions	COMMAND CAPABILITIES (available to, or under the control of the user)	Syracuse University SULIRS	Ohio State LCS	OCLC System	Dallas Public LSCAN	Iowa City Public CLSI/PAC
28	Logon (begin session protocol	X*	X*	X	X	X
	Select function desired			X		
	System has default for function	X	X†	X	X	X
	Select file desired			X		
	System has default for file	X	X	X	X	X
	Set default values for session					
	Set system message length					
	Select dialog mode					
32	Edit input (erase/modify)	X	X	X	X	
31	Interrupt online output	X		X*		
27	Stack commands	X§	X			
26	Save search statements					
26	Purge search statements					
	Logoff (end session protocol)	X*	X*	X		

X = Command capability available to, or under the control of the user.

NOTES: *Dial access only.
†At some locations, terminals provide both search and copy "HOLD" functions.
§Allowed in entry of access points such as author and title, or author and subject, etc.

QUESTIONS:
26. Using logical terms like AND, OR, NOT is difficult.
27. Remembering the exact sequence or order of commands is easy.
28. Understanding the initial instructions on the screen is difficult.
31. Interrupting or stopping the display of information is easy.
32. Typing in exact spelling, initials, spaces and hyphens is difficult to do.

6.1.2 Search Formulation Control

Nearly every Search Formulation Control feature was covered by a survey question (see Table 46). Questions 16 and 27, which dealt with remembering commands, might be pertinent to every feature categorized into Search Formulation Control, since the input of derived search keys, controlled vocabulary, free text terms, limit criteria, etc., must be prefaced by a command and/or a field label or a distinguishing characteristic (e.g., ATS/, SU;, commas in OCLC derived search keys, etc.). Questions 16 and 27 were only included in checklists when the listed feature referred to a specific user action or general command capability. Questions about truncation and the use of codes or abbreviations in online searching covered derived search key and truncation features of OPACs. Subject searching in the online public access catalog was covered in two questions on ease of use and in several response categories in one question on OPAC improvements. Boolean operators were directly referenced in one question on the ease of using logical operators.

Table 46. Search Formulation Control: Checklist of Command Capabilities

Pertinent User Survey Questions	COMMAND CAPABILITIES (available to, or under the control of the user)	Syracuse University SULIRS	Ohio State LCS	OCLC System	Dallas Public LSCAN	Iowa City Public CLSI/PAC
	Search is default function	X	X*	X	X	X
16, 27	General search command is used	X				
22, 25	Derived search keys are required		X	X	X	
13, 17, 44b, c, h, i	Controlled term searching		X		X	X
	Free-text term searching of:					
13, 17, 44b, c, h, i	entire record					
13, 17, 44b, c, h, i	selected field(s)	X				
44d, e	Restrict/limit search results		X	X		
	Boolean operators on:					
26	any searchable field	X§				
26	selected fields	X§				
44d	Relational operators, explicit use		X	X		
22, 25	Truncation, explicit use	X	X	X†		
	Proximity operators, explicit use					

X = Command capability available to, or under the control of the user.

NOTES: *At some locations, terminals default to both search and copy "HOLD" functions.
†Some components of a derived search key may be truncated or omitted.
§Explicit use of Boolean operators had just been implemented at the time of questionnaire administration.

QUESTION:
13. A computer search by subject is difficult.
16. Remembering commands in the middle of the search is easy.
17. Finding the correct subject term is difficult.
22. Using codes or abbreviations for searching is easy.
25. Searching with a short form of a name or a word (truncation) is easy.
26. Using logical terms like AND, OR, NOT is difficult.
27. Remembering the exact sequence or order of commands is easy.
44. Select up to FOUR additional features you would like this computer catalog to have:
  b. Searching by any word(s) in a title.
  c. Searching by any word(s) in a subject heading.
  d. Limiting search results by date of publication.
  e. Limiting search results by language.
  h. Ability to view a list of words related to my search words.
  i. Ability to search a book's table of contents, summary or index.

The ease of performing author, title, author/title, and subject searches was captured in a number of survey questions (see Table 47). Some systems, such as OCLC, Ohio State, and Dallas Public, required the input of derived search keys for various access points; thus, responses to questions about truncation or codes and abbreviations for searching may have implications for derived key searching. The survey question about additional OPAC features includes title, subject, call number, and other access points.

Table 47. Access Points: Checklist of Command Capabilities

Pertinent User Survey Questions	COMMAND CAPABILITIES (available to, or under the control of the user)	Syracuse University SULIRS	Ohio State LCS	OCLC System	Dallas Public LSCAN	Iowa City Public CLSI/PAC
	ACCESS POINTS					
12, 22, 25	Personal author	X	X	X	X	X
12, 22, 25	Corporate author	X	X	X	X	X
15, 22, 25	Author/title	X	X	X	X	
11, 22, 25, 44b	Title	X	X	X	X	X
13, 17, 22, 25, 44b, c, h, l	Subject	X	X		X	X
14, 44j	Call number	X	X		X	X
	LC card number	X*		X†		
	ISBN	X*		X†		
	ISSN	X*		X†		
	Government document number			X†		
	Other control number	X*	X	X†		
44b, c, f, i, j, l	Additional access points	X*		X†		

X = Command capability available to, or under the control of the user.

NOTES: *Not explained or covered in online or offline assistance.
†Explained or covered in offline assistance.

QUESTIONS:
11. A computer search by title is difficult.
12. A computer search by author is easy.
13. A computer search by subject is difficult.
14. A computer search by call number is easy.
15. A computer search by combined author/title is difficult.
17. Finding the correct subject term is difficult.
22. Using codes or abbreviations for searching is easy.
25. Searching with a short form of a name or a word (truncation) is easy.
44. Select up to FOUR additional features you would like this computer catalog to have:
    b. Searching by any word(s) in a title.
    c. Searching by any word(s) in a subject heading.
    f. Ability to search by journal title abbreviations.
    h. Ability to view a list of words related to my search words.
    i. Ability to search for illustrations and bibliographies.
    j. Ability to search by call number.
    l. Ability to search a book's table of contents, summary or index.

6.1.3 Output Control

A number of survey questions were pertinent to display features and display command capabilities: remembering commands, understanding single or multiple item displays, the ability to stop displays, moving forward or backward in displays, entering commands at any time (see Table 48). Beside the fact that these questions tested aspects of OPAC features, e.g., memorability, flexibility, clarity, etc., they related to more than one OPAC feature. Consequently, interpreting users' responses to survey questions about display command capabilities and display features was difficult because of overlap among questions and features. Survey responses to these questions were closed-ended, indicating the ease of use or patrons' experiences with features but did not reveal why the experience was easy or difficult.

Table 48. Output Control: Checklist of Command Capabilities

Pertinent User Survey Questions	COMMAND CAPABILITIES (available to, or under the control of the user)	Syracuse University SULIRS	Ohio State LCS	OCLC System	Dallas Public LSCAN	Iowa City Public CLSI/PAC
16, 27, 31, 37	General command to display results	X*	X	X	X	X
16, 27, 29, 30	Select display from predefined formats	X	X	X		X
16, 27, 29, 30	Select specific record(s) for display	X*	X	X	X	X
	Select specific field(s) for display					
34	Sort results for display					
	Merge results for display					
16, 18, 27, 29, 30, 36, 37	Display forward (records or screens)	X	X	X	X	X
16, 18, 27, 29, 30, 36, 37	Display backward (records or screens)	X*	X	X		X
16, 18, 27, 29, 30, 37	Scroll	X				X
31, 37	Interrupt scroll	X				
43h, 44k	Request offline hardcopy print					
43h, 44k	Produce online hardcopy print		X	X†		
	Cancel offline print request					

X = Command capability available to, or under the control of the user.

NOTES: *Only in full bibliographic record displays. System default is an abbreviated display.
†Some member institutions provide hardcopy terminals or attached printers.

QUESTIONS:
16. Remembering commands in the middle of the search is easy.
18. Scanning through a long display (forward or backward) is easy.
27. Remembering the exact sequence or order of commands is easy.
29. Understanding the display for a single book, journal or magazine is easy.
30. Understanding the display that shows more than a single book, journal or magazine is difficult.
31. Interrupting or stopping the display of information is easy.
36. Selecting from a list of choices takes too much time.
37. Entering commands when I want to during the search process is difficult.
43. When I use the computer catalog terminal:
    h. The printer is easy to use.
44. Select up to FOUR additional features you would like this computer catalog to have:
    k. Ability to print search results.

6.1.4 User Assistance--Information and Instruction

Overlap between features and questions also occurred in Table 49, which summarizes the user-assistance features available to OPAC users of the five systems studied. A number of user-assistance features listed in the checklist were neither available in the systems studied nor covered in a survey question, e.g., show search history, online tutorials. A number of user-assistance features listed in the checklist were covered by questions in the survey but not available in the systems studied, e.g., list searchable fields for review, explain system messages. To be comprehensive in testing the gamut of OPAC features, the questionnaire would have to be revised for future administrations. Focus group interviews were a means of pinpointing users' problems with features that were both covered and not covered in the survey instrument as well as finding out about the nature of those problems.

File lists, command lists, news or messages, prompts, and help displays were pertinent to question 35, i.e., "displayed messages are too long" because they were composed of text or prose description. However, users who responded positively to question 35 could have been referring specifically to any one or a combination of user-assistance features such as file lists, news or messages, prompts, or help displays. Item location and/or item availability was information typically found in full or intermediate bibliographic record displays and was designated in codes or abbreviations that referred to library departments, branches, circulation dates, reserve status, etc. Users' responses to questions about understandability of abbreviations and single- or multiple-record displays could be pertinent to the system's representation of item location and/or item availability. Prompts or guidance comments in the OPAC interface could be evaluated through responses to questions about command memorability, clarity of screen explanations, and length of prompts; i.e., are prompts available to help users remember the next logical command; do they convey a meaningful message; and are they concise and explicit or ambiguous and wordy?

Table 49. User Assistance--Information and Instruction: Checklist of Command Capabilities

Pertinent User Survey Questions	COMMAND CAPABILITIES (available to, or under the control of the user)	Syracuse University SULIRS	Ohio State LCS	OCLC System	Dallas Public LSCAN	Iowa City Public CLSI/PAC
35, 44a	List files for review					
35, 36	List searchable fields for review					
16, 21, 27, 35, 36, 37, 44a	List commands for review					X
17, 44h	Show index or thesaurus terms		X		X	X
	Show search history					
	Show time elapsed or cost					
35	Show news or special messages			X		
35	Explain system messages					
	Identify offline assistance			X		
23, 29, 30, 44n	Indicate item location	X	X	X	X	X
23, 29, 30, 44m	Indicate item availability	X	X		X*	X
16, 21, 27, 28, 35, 37, 44a	Prompts or guidance comments	X	X	X	X	
21, 28, 33, 35	Help displays retrievable	X				X
	Online tutorial(s)					

X = Command capability available to, or under the control of the user.

NOTE: *To be implemented.

QUESTIONS:
16. Remembering commands in the middle of the search is easy.
21. Understanding explanations on the screen is difficult.
23. Abbreviations on the screen are easy to understand.
27. Remembering the exact sequence or order of commands is easy.
28. Understanding the initial instructions on the screen is difficult.
29. Understanding the display for a single book, journal or magazine is easy.
30. Understanding the display that shows more than a single book, journal or magazine is difficult.
33. Knowing what is included in the computer catalog is easy to remember.
35. Displayed messages are too long.
36. Selecting from a list of choice takes too much time.
37. Entering commands when I want to during the search process is difficult.
44. Select up to FOUR additional features you would like this computer catalog to have:
    a. Providing step by step instructions.
    h. Ability to view a list of words related to my search words.
    m. Ability to know if a book is checked out.
    n. Ability to tell where a book is located in the library.

The preceding discussion about responses to the OPAC features questions pointed out the following difficulties interpreting users' responses: (1) there was no one-to-one correspondence between features and questions of ease of use; (2) features questions covered partial aspects of users' total experience with features, e.g., memorability, flexibility, clarity, etc; (3) overlap among features and questions made it difficult to determine what feature was referenced by users' responses to questions; and (4) closed-endedness of survey questions did not disclose the difficult or easy nature of a particular feature.

At times, the questionnaire lacked questions pertinent to features available in one or more of the systems studied. There were also questions in the survey that asked about feature(s) that none of the systems in the survey had. Institutions interested in using the questionnaire in the future should consider revisions to the questionnaire to accommodate system-specific features and the difficulties listed above.

Focus group interviews were conducted with OPAC users, nonusers, and library staff at four of the five library systems whose OPACs are featured in the checklists: Syracuse University, The Ohio State University, Dallas Public, and Iowa City Public. Mankato State University and the Library of Congress also participated in focus groups. Focus group interviews provided a rich source for learning the nature of users' problems with OPAC features, helping to interpret survey results with regard to system features in general, and disclosing users' problems with OPAC features that were not tested by the questionnaire.

6.2 USERS' FAVORABLE EXPERIENCES WITH OPAC FEATURES

In the survey, a likert scale was employed to collect OPAC users' degree of agreement with statements about OPAC features. The OPACs' ease of use was measured by some but not all of the statements. This and other problems (see section 6.1) increased the difficulty of interpreting the results. For the sake of simplicity, the results of the analysis of users' responses to features questions are discussed in view of users' favorable and unfavorable experiences with OPACs.

There was a significant difference in the "average" responses to all positively phrased questions (such as "a computer search by author is easy") and the "average" responses to all negatively phrased questions (such as "locating call numbers on the screen is difficult"). (See University of California, 1982, p. 66, for details of this difference.) Analysis of OPAC users' responses to likert scale statements involved the segregation of positively and negatively phrased statements because of the difference between them. In the following sections, tables of ranked features statements contain statements with the same numbered rank because of this segregation.

The majority of users' responses to likert scale statements fell into response categories indicating that users had favorable or unfavorable experiences with OPAC features. The analysis involved the comparison of "average" responses with arithmetically transformed ranges of likert response categories. (See University of California, 1982, p. 65, for details of this analysis procedure.)

Table 50 lists questionnaire statements about OPAC features and gives the rank each statement achieved in comparative analyses of the "average" of responses from all users of a particular system, heavy users, and university faculty (at academic libraries). Regardless of positive or negative wording, the statements listed in Table 50 are accompanied by a number (i.e., rank) designating OPAC features with which OPAC users had favorable experiences.

Table 50. Favorable Experiences with OPAC Features

	Syracuse			Ohio State			OCLC System			Dallas Pub.		Iowa City Pub.	
Statements:†	All Users	Heavy Users	Fac.	All Users	Heavy Users	Fac.	All Users	Heavy Users	Fac.	All Users	Heavy Users	All Users	Heavy Users
ACCESS POINTS													
11. A computer search by title	5	5		3	3		3	3	3	2	2		4.5
12. A computer search by author	1	1	2	1	1	1	1	1	2	1	1	1	1
14. A computer search by call number				2	2	2	NA	NA	NA				
15. A computer search by combined author/title			1	4	2	2	2	1	2	3	3	NA	NA
OUTPUT CONTROL													
16. Remembering commands in the middle of a search												4	3
24. Locating call numbers on the screen	1	1	4			3						3	3
27. Remembering the exact sequence or order of commands												5	5
29. Understanding the display for a single book, journal or magazine	2	2	1				2	2	1	2	2	2	4
30. Understanding the display that shows more than a single book, journal or magazine	4	4	2						4				
34. The order in which items are displayed												3	2
ONLINE USER ASSISTANCE													
21. Understanding explanations on the screen	2	3	3									2	4.5
28. Understanding the initial instructions on the screen	3	2	5									5	2
35. Displayed messages												4	6
OFFLINE USER ASSISTANCE AND SERVICES													
39. The availability of signs and brochures				3	3								
40. Usefulness of signs and brochures				1	1		4	4	5				
41. Helpfulness of staff advice				5		1	1	2	1	1	1	1	1
42. Finding a free terminal				2	4	4							

6.2.1 Search Formulation Control: Access Points

OPAC users' questionnaire responses indicated favorable experiences with access points for finding known items, e.g., title, author, combined author/title access points. What was remarkable about this finding was the vast difference in the entry of known-item information across the five OPACs studied. For example, author information is entered in the five systems studied in the five ways shown in Table 51.

Each system required the user to stipulate the type of access point (in the example above, author). In Syracuse and Ohio State's systems, the user prefaced author information by entering a label, i.e., "AU;" or "AUT/"; at Iowa City Public, users touched the author label to activate an author search. In the OCLC system, two commas indicate that the incoming derived search key represents author information. At Dallas Public, users tabbed the cursor to the appropriate access point, e.g., author, then filled in the blanks with the first ten letters of the author's last name, the first two letters of the author's first name, the first two letters of the author's first middle name, and the first letter of the author's second middle name. Some of the five OPACs allowed implicit truncation of certain parts of author names.

Examples of the entry of author/title information are given in Table 52 to show the wide variation in both the amount of information entered and how it is entered across four systems offering author/title searches.

Table 51. Five Ways to Enter Author Information

User	Users' Entered Information	System; Library
Types in field label followed by author's name.	AU; WOUK HERMAN	SULIRS; Syracuse
Types in field label followed by author's name.	AUT/WOUK HERMAN	LCS; Ohio State
Types in derived search key 4,3,1 for author's name.	WOUK,HER,	OCLC; University of Akron, Ohio University, State Library of Ohio, University of Texas at Austin, University of Texas at Dallas
Fills in blanks 10,2,2,1 following author label on terminal screen.	AUTHORWOUK _ _ _ _ HE _ _ _	LSCAN; Dallas Public
Touches "AUTHOR" label on initial screen, touches author's names that come alphabetically before "Wouk" until BROWSE-REVERSE and BROWSE-FORWARD touch commands appear at bottom of screen. The name will be listed if library has books by "WOUK".	AUTHOR	CLSI/PAC; Iowa City Public

Table 52. Four Ways to Enter Author/Title Information

User	Users' Entered Information	System; Library
Types in field labels in any sequence followed by author and title information.	TI;WINDS WAR AU; WOUK	SULIRS; Syracuse
Types in field label and derived search key of first four letters of author's last name and first five letters of first title word.	ATS/WOUK WINDS	LCS; Ohio State
Types in derived search key of first four letters of author's last name, comma, first four letters of first title word.	WOUK,WIND	OCLC; University of Akron, Ohio University, State Library of Ohio, University of Texas at Austin, University of Texas at Dallas
Fills in blanks 10,2,2,1 following author label on screen, tabs to title label, fills in blanks following title label.	AUTHOR WOUK _ _ _ _ _ HE _ _ _ TITLE WINDS _ _ _ _ _ OF WA _	Dallas Public

The entry of subject information in the five systems studied involved comparable entry techniques (field labels, derived search key, or format filling), and the amount of subject information varied from system to system just as it had in known-item searching. Subject access points did not appear in Table 50 among features with which users had favorable experiences but appeared in Table 53 among features with which users had unfavorable experiences (see section 6.3.1). Users were probably responding to statements about known-item access points with the idea that finding an item by a given author or finding an item with a given title, etc., was a concrete intellectual task. If the user could not find the author or title in the online public access catalog, the library probably did not own the book with that title or by that author. In comparison, the task of subject searching was less concrete and often required more effort. Library materials about a topic, such as World War II, could be listed under any number of subjects, e.g., World War II, Hitler, Nazis, U.S. Navy, Fiction, or, for those who were aware that the library's collection was described by a controlled vocabulary, under a subject heading that the library allowed, e.g., World War, 1939-1945, National Socialism. Difficulties expressed by users about finding the right subject heading are covered in detail in section 6.3.1. The importance of comparing known-item and subject access points at this time is to emphasize that the difference in users' experiences with the former and the latter may lie in the concrete nature of the task of known-item searching as opposed to the more abstract nature of the task of subject searching. Subject searches often required additional mental effort to conjure up many phrases or single terms to express a topic or concept.

Focus group participants noted that the virtue of the author/title access point was its ability to pinpoint the needed item with a minimum of screen manipulations.

- Author/title command works quickly and pinpoints what I want. (Syracuse, graduate users)
- I like author/title search; it quickly finds what I want. (Ohio State, graduate users)
- Author/title is a good, direct approach. (Ohio State, reference staff)
- Author/title search pinpoints a book ... it's really quick. (Mankato State, library graduate assistant users)

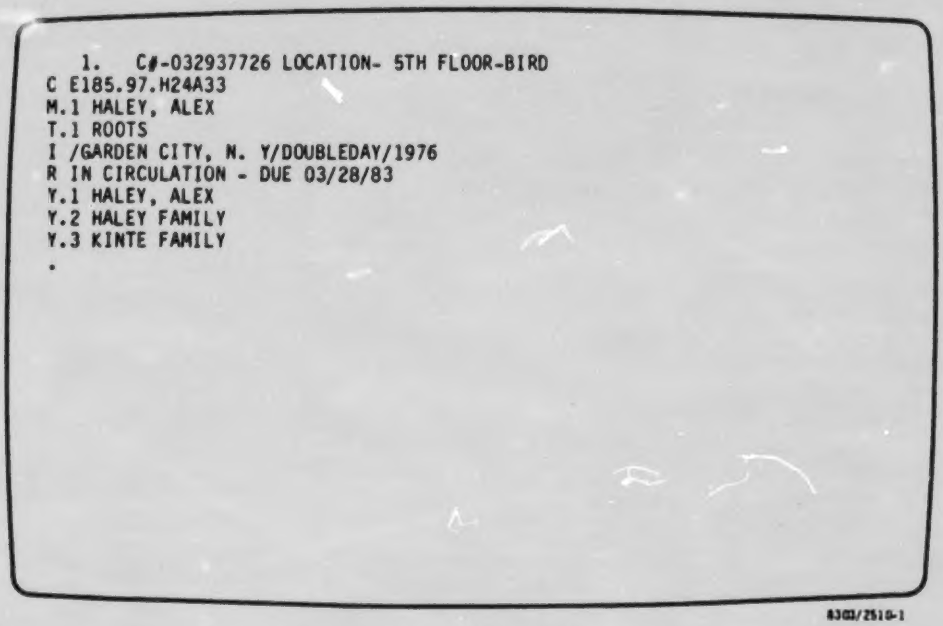
The call number access point was singled out only by users at Ohio State among the four OPACs offering the feature. The call number search (named SPS or shelf position search at Ohio State) was used by searchers both to browse the shelflist and to perform subject searches. Subject headings of items entered into the OPAC before June 1978 were not included in the online subject heading index; the only way to retrieve such items was through the shelf position search. Ohio State users, particularly library staff, noted the value of this access point in focus group interviews:

- I like SPS for subject searching. (Reference staff)
- I like SPS - I could never search the shelflist in the card catalog. (Informal instruction staff)
- I always look around the shelf to find other books on a subject; that's why I use SPS with SUB (subject heading search). (Telephone Information Center)
- I can switch back and forth from SUB (subject heading search) to SPS to AUT (author search); if you find one book, you can get a lot more on the subject. (Reference staff)

Access points with which users reported favorable experiences were connected with known-item searching, even though the five OPACs studied differed greatly in the entry of known-item information and the amount of information entered. However, subject access points were not listed among OPAC features about which users expressed favorable experiences. Thus, OPAC users might have answered survey questions about access points in view of the concreteness of the tasks or the amount of mental effort involved in the tasks of known-item and subject searching. Subject searching is less concrete and requires greater mental effort than known-item searching. OPAC users were notably pleased with the performance of author/title searches. Ohio State users singled out the call number search feature for browsing the shelflist and as the only way to perform subject searches for items entered into the OPAC prior to a given year.

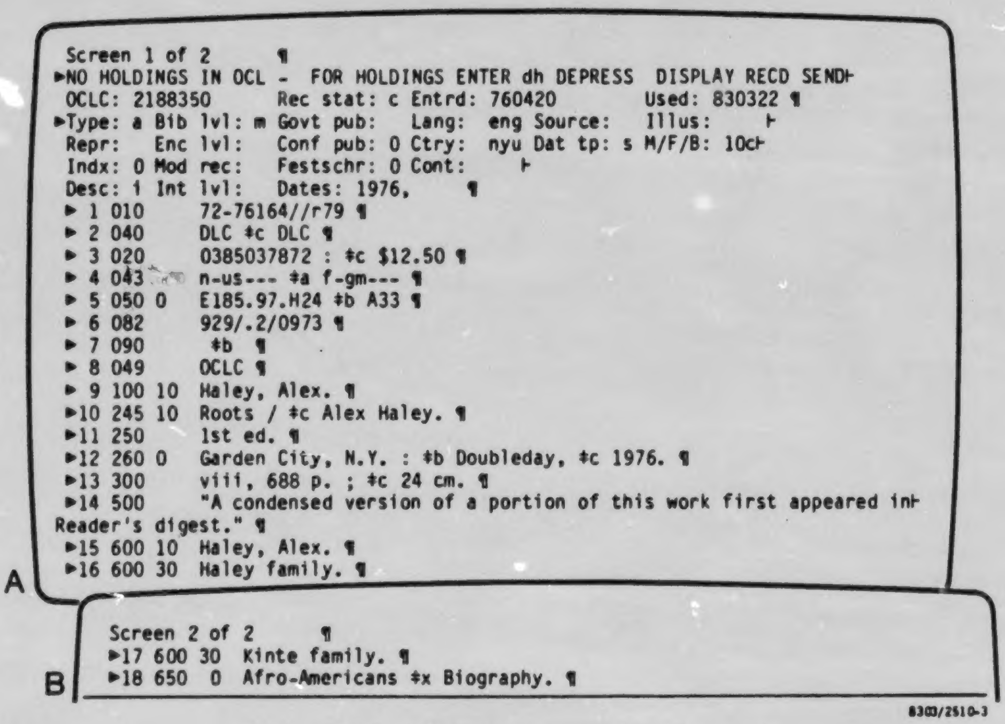
6.2.2 Output Control

The clarity of single bibliographic record displays was cited by users of four of the five OPACs studied in the survey. Examples of single record displays for Arthur Haley's book Roots are given in Figures 1-4.



```
   1.   C#-032937726 LOCATION- 5TH FLOOR-BIRD
C E185.97.H24A33
M.1 HALEY, ALEX
T.1 ROOTS
I /GARDEN CITY, N. Y/DOUBLEDAY/1976
R IN CIRCULATION - DUE 03/28/83
Y.1 HALEY, ALEX
Y.2 HALEY FAMILY
Y.3 KINTE FAMILY
.
```

Figure 1. Bibliographic Record at Syracuse (SULIRS)

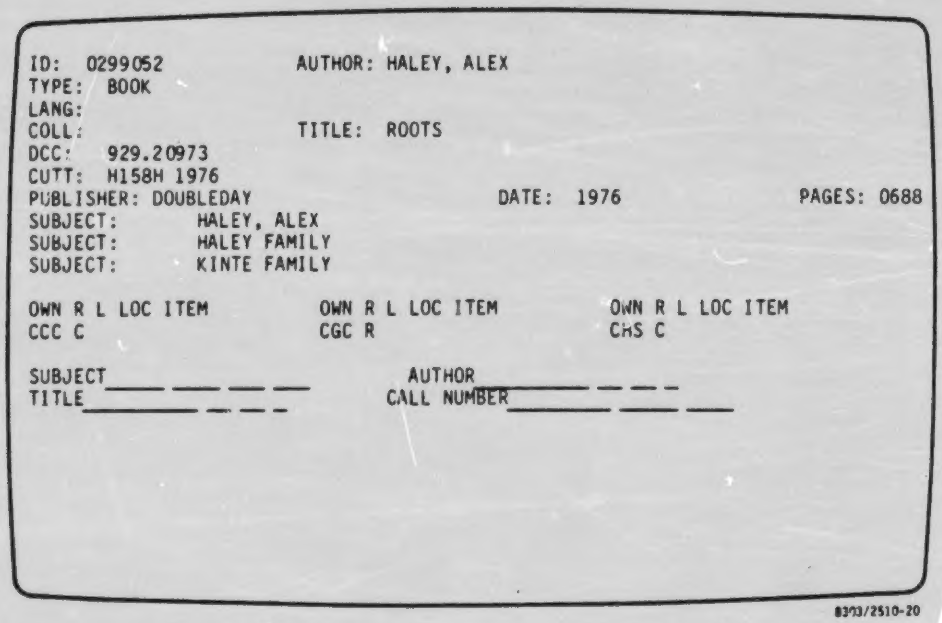


```
 Screen 1 of 2      ¶
►NO HOLDINGS IN OCL -  FOR HOLDINGS ENTER dh DEPRESS  DISPLAY RECD SEND⊦
 OCLC: 2188350      Rec stat: c Entrd: 760420        Used: 830322 ¶
►Type: a Bib lvl: m Govt pub:   Lang:  eng Source:   Illus:     ⊦
 Repr:   Enc lvl:   Conf pub: 0 Ctry:  nyu Dat tp: s M/F/B: 10c⊦
 Indx: 0 Mod rec:   Festschr: 0 Cont:     ⊦
 Desc: 1 Int lvl:   Dates: 1976,     ¶
 ► 1 010      72-76164//r79 ¶
 ► 2 040      DLC ‡c DLC ¶
 ► 3 020      0385037872 : ‡c $12.50 ¶
 ► 4 043      n-us--- ‡a f-gm--- ¶
 ► 5 050 0    E185.97.H24 ‡b A33 ¶
 ► 6 082      929/.2/0973 ¶
 ► 7 090       ‡b  ¶
 ► 8 049      OCLC ¶
 ► 9 100 10   Haley, Alex. ¶
 ►10 245 10   Roots / ‡c Alex Haley. ¶
 ►11 250      1st ed. ¶
 ►12 260 0    Garden City, N.Y. : ‡b Doubleday, ‡c 1976. ¶
 ►13 300      viii, 688 p. ; ‡c 24 cm. ¶
 ►14 500      "A condensed version of a portion of this work first appeared in⊦
Reader's digest." ¶
 ►15 600 10   Haley, Alex. ¶
 ►16 600 30   Haley family. ¶
```

```
 Screen 2 of 2      ¶
 ►17 600 30  Kinte family. ¶
 ►18 650  0  Afro-Americans ‡x Biography. ¶
```

8303/2510-3

Figure 2. OCLC Bibliographic Record
A. Screen 1
B. Screen 2



```
ID:  0299052            AUTHOR: HALEY, ALEX
TYPE:  BOOK
LANG:
COLL:                   TITLE:  ROOTS
DCC:   929.20973
CUTT:  H158H 1976
PUBLISHER: DOUBLEDAY                       DATE:  1976              PAGES: 0688
SUBJECT:       HALEY, ALEX
SUBJECT:       HALEY FAMILY
SUBJECT:       KINTE FAMILY

OWN R L LOC ITEM          OWN R L LOC ITEM          OWN R L LOC ITEM
CCC C                     CGC R                     CHS C

SUBJECT____ ___ ___ ___        AUTHOR_______ __ __ _
TITLE__________ __ __ _     CALL NUMBER_______ _____ ____
```

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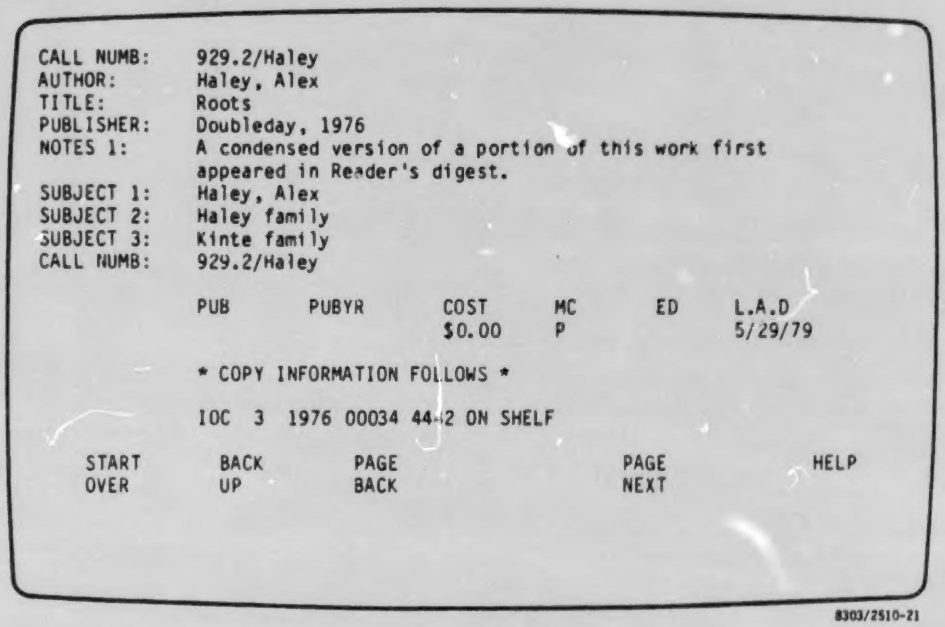
Figure 3. Bibliographic Record at Dallas Public (LSCAN)



```
CALL NUMB:     929.2/Haley
AUTHOR:        Haley, Alex
TITLE:         Roots
PUBLISHER:     Doubleday, 1976
NOTES 1:       A condensed version of a portion of this work first
               appeared in Reader's digest.
SUBJECT 1:     Haley, Alex
SUBJECT 2:     Haley family
SUBJECT 3:     Kinte family
CALL NUMB:     929.2/Haley

               PUB      PUBYR      COST     MC      ED     L.A.D
                                   $0.00    P              5/29/79

               * COPY INFORMATION FOLLOWS *

               IOC  3  1976 00034 4442 ON SHELF

   START     BACK      PAGE                     PAGE             HELP
   OVER      UP        BACK                     NEXT
```

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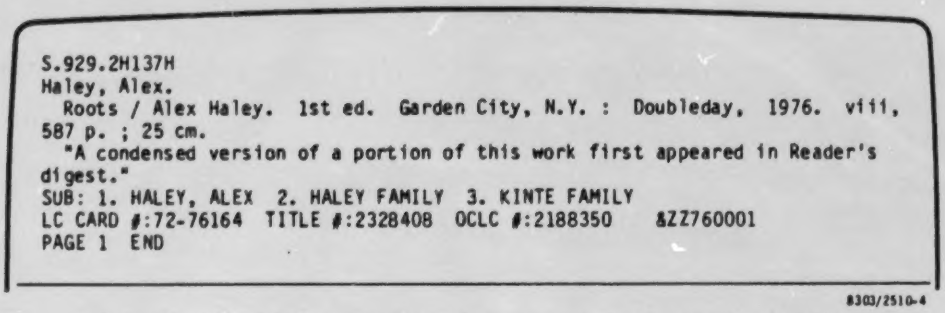
Figure 4. Bibliographic Record at Iowa City Public (CLSI/PAC)

The fields of full bibliographic records in all four systems were prefaced by a numeric or alphabetic designation, which ranged from MARC tags and indicators (e.g., 245 10, or 600 30) to English language headings (e.g., title, subject 1). Since Ohio State's LCS, the one system whose users did not report favorable experiences with its bibliographic records, did not preface fields by numeric or alphabetic designations, it may be speculated that any designation sets off lines of text to indicate to searchers differences in the meaning from one labeled line of text to another.

At first glance, the fact that OCLC users had favorable experiences with single record displays was surprising because MARC tags are probably recognizable to library staff but not to everyday academic library patrons. Realize that 41% of OCLC users who filled in questionnaires noted that they had consulted the librarian to help them with the search they had just completed. Most likely, the librarian had explained the meaning of the numeric tags and accompanying text to OCLC users.

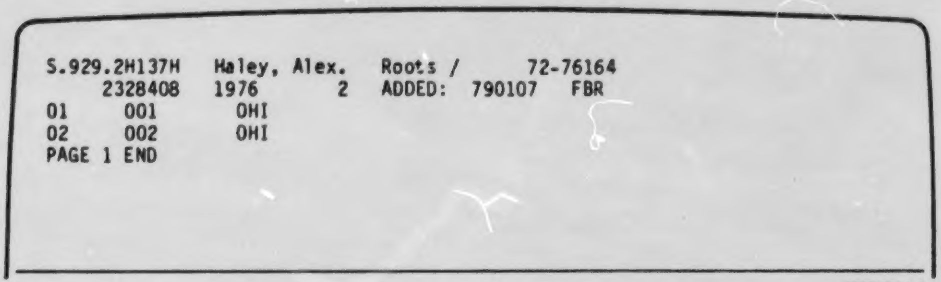
Syracuse's alphanumeric designations were very brief (one to three characters) and referred to library jargon ("m" refers to main entry "i" refers to imprint, etc.). However, the order of displayed lines of text was comparable to the order of text on a catalog card. The text of Ohio State's single record displays was also arranged in the familiar card catalog order as in the example of the book <u>Roots</u> shown in Figure 5.



```
S.929.2H137H
Haley, Alex.
  Roots / Alex Haley.  1st ed.  Garden City, N.Y. :  Doubleday,  1976.  viii,
587 p. ; 25 cm.
  "A condensed version of a portion of this work first appeared in Reader's
digest."
SUB: 1. HALEY, ALEX  2. HALEY FAMILY  3. KINTE FAMILY
LC CARD #:72-76164  TITLE #:2328408  OCLC #:2188350    &ZZ760001
PAGE 1  END
```

Figure 5. Bibliographic Record at Ohio State (LCS)

Full bibliographic record displays such as the above example were only available for library materials entered into the Ohio State OPAC after June 1978. In contrast, circulation information for individual items was available for all Ohio State library materials. The single display of circulation information shown in Figure 6 could have been the "single display" of which survey respondents were thinking when they responded to the question about single record displays.



```
S.929.2H137H   Haley, Alex.   Roots /      72-76164
     2328408   1976       2   ADDED:  790107   FBR
01      001      OHI
02      002      OHI
PAGE 1 END
```

Figure 6. Circulation Information at Ohio State (LCS)

Focus group participants at Ohio State mentioned the difficulty of understanding abbreviations and codes in circulation displays, for example:

- Patrons have trouble interpreting what they print on individual items; they don't know charge codes, reserve codes, library locations, etc. (Telephone Information Center)
- Patrons don't understand circulation codes, due dates, etc. They wait for months for a book to be returned and never bother asking us to explain the "save" policy. (Informal instruction staff)

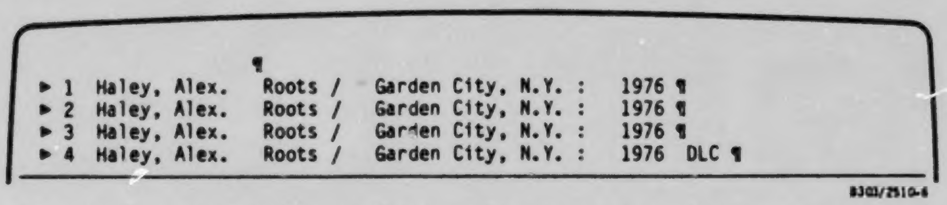
Ohio State's LCS was not the only OPAC whose records had codes, abbreviations, unexplained information, jargon, etc. Focus group participants at other OPAC sites noted such information:

- "Missing" designation on a record - I had to go to the reference desk to confirm what it meant, i.e., the book is lost. Why doesn't the catalog record just say "lost?" (Syracuse, graduate light users)

- Location of books should be spelled out, like PA should be Performing Arts. (Mankato State, undergraduate users)
- Don't call the bibliographic item a "record." Certain commands are confusing too, e.g., ns, ps, nr, pr. (Mankato State, public service and media faculty)
- People can't understand codes and symbols - like what is LOC? There's no explanation anywhere of circulation or reserve codes. So, whenever there's no help around, people never know. (Dallas Public, volunteer trainers)
- L.A.D. (last activity date) -- people think it means the book is checked out. The L.A.D. should be moved to a more inconspicious place. (Iowa City, reference staff)

Abbreviations, codes, etc., were located chiefly in circulation displays; truncated, short, intermediate, or full bibliographic record displays; command names; or abbreviations for command names. Such displays and command names should be reviewed by library staff and potential patron users of OPACs, or be coded in such a way that would easily accommodate changes after the introduction of the OPAC to the library.

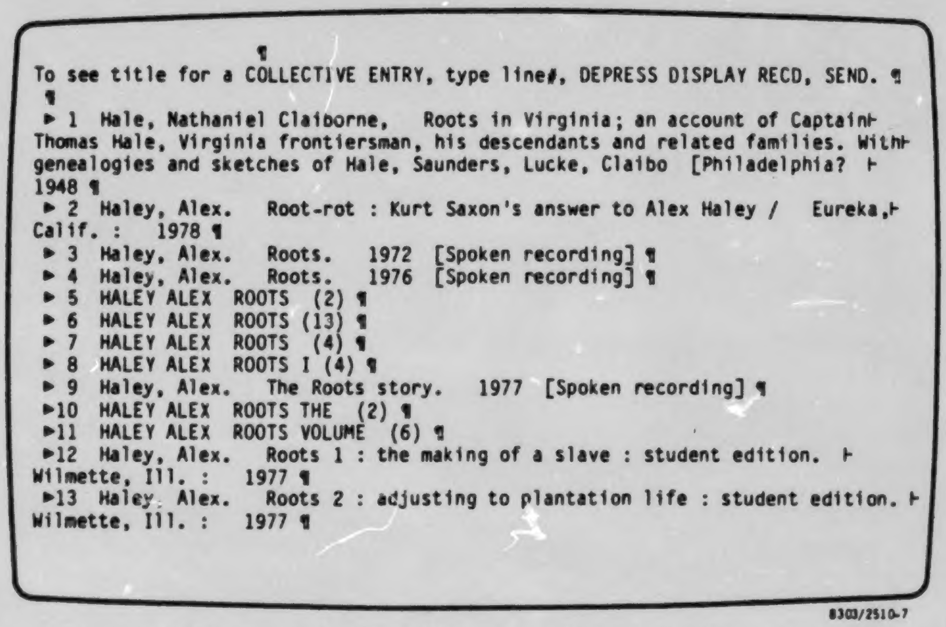
OPAC displays that showed multiple bibliographic records were singled out by all three user groups at Syracuse and by OCLC faculty users. Faculty use of OCLC was notably greater than faculty use of OPACs at other academic libraries (see Table 19); probably faculty members consulting OCLC were simply more familiar with the system's features than other user groups. Also, 51% of these faculty members obtained assistance from the librarian in the course of their search (in contrast to 41% of the total OCLC users who obtained the librarian's assistance); consequently, librarians might have explained OCLC displays that showed multiple bibliographic records. Such displays ranged in complexity from the simple list of truncated entries produced by the qualified author/title search key, "hale,root/bks/1976" (see Figure 7) to truncated and collective entry displays produced by an unqualified author/title search key, "hale,root" (see Figure 8). Perhaps OCLC users required the librarian's assistance when interpreting the complex group displays but found truncated displays somewhat self-explanatory.



```
                         ¶
 ► 1  Haley, Alex.   Roots /   Garden City, N.Y. :    1976 ¶
 ► 2  Haley, Alex.   Roots /   Garden City, N.Y. :    1976 ¶
 ► 3  Haley, Alex.   Roots /   Garden City, N.Y. :    1976 ¶
 ► 4  Haley, Alex.   Roots /   Garden City, N.Y. :    1976  DLC ¶
```

8303/2510-6

Figure 7. OCLC Truncated Entry Display Produced by a Qualified Author/Title Search Key



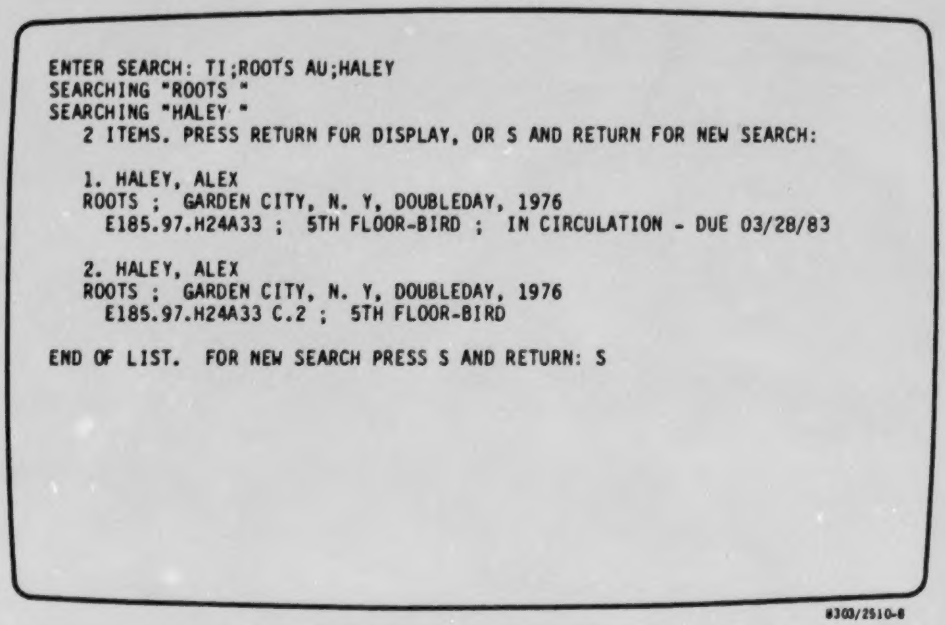
```
                         ¶
To see title for a COLLECTIVE ENTRY, type line#, DEPRESS DISPLAY RECD, SEND. ¶
 ¶
 ► 1  Hale, Nathaniel Claiborne,   Roots in Virginia; an account of Captain⊦
Thomas Hale, Virginia frontiersman, his descendants and related families. With⊦
genealogies and sketches of Hale, Saunders, Lucke, Claibo  [Philadelphia?  ⊦
1948 ¶
 ► 2  Haley, Alex.   Root-rot : Kurt Saxon's answer to Alex Haley /   Eureka,⊦
Calif. :   1978 ¶
 ► 3  Haley, Alex.   Roots.   1972  [Spoken recording] ¶
 ► 4  Haley, Alex.   Roots.   1976  [Spoken recording] ¶
 ► 5  HALEY ALEX  ROOTS  (2) ¶
 ► 6  HALEY ALEX  ROOTS (13) ¶
 ► 7  HALEY ALEX  ROOTS  (4) ¶
 ► 8  HALEY ALEX  ROOTS I (4) ¶
 ► 9  Haley, Alex.   The Roots story.   1977  [Spoken recording] ¶
 ►10  HALEY ALEX  ROOTS THE  (2) ¶
 ►11  HALEY ALEX  ROOTS VOLUME  (6) ¶
 ►12  Haley, Alex.   Roots 1 : the making of a slave : student edition.  ⊦
Wilmette, Ill. :   1977 ¶
 ►13  Haley, Alex.   Roots 2 : adjusting to plantation life : student edition. ⊦
Wilmette, Ill. :   1977 ¶
```

8303/2510-7

Figure 8. OCLC Truncated and Collective Entry Display Produced by an Unqualified Author/Title Search Key

Displays of a number of bibliographic records were easily produced in the Syracuse OPAC by the user's response to a prompt, which always occurred when the system retrieved one or more bibliographic records in response to the user's input access point. The example in Figure 9 shows that the Syracuse OPAC user has retrieved two items in response to the author/title access point, "TI;ROOTS AU;HALEY". In its report of the number of retrieved items, the system included the message "PRESS RETURN FOR DISPLAY." Users who pressed return at this point obtained brief level displays of the first five retrieved items, which would conclude with the same message, "PRESS RETURN FOR DISPLAY" if there were more items retrieved that had not been displayed. If all items had been displayed (as in Figure 9), the system would have reported that the list had ended and shown how to begin a new search.

Regardless of the absence of alphabetic or numeric field labels prefacing lines of text in these Syracuse multiple record displays, users reported favorable experiences with multiple record displays. Their favorable experiences might have been in response to the prompt to display the records and the simplicity of user action, i.e., pressing the RETURN key.



```
ENTER SEARCH: TI;ROOTS AU;HALEY
SEARCHING "ROOTS "
SEARCHING "HALEY "
   2 ITEMS. PRESS RETURN FOR DISPLAY, OR S AND RETURN FOR NEW SEARCH:

   1. HALEY, ALEX
   ROOTS ;  GARDEN CITY, N. Y, DOUBLEDAY, 1976
     E185.97.H24A33 ;  5TH FLOOR-BIRD ;  IN CIRCULATION - DUE 03/28/83

   2. HALEY, ALEX
   ROOTS ;  GARDEN CITY, N. Y, DOUBLEDAY, 1976
     E185.97.H24A33 C.2 ;  5TH FLOOR-BIRD

END OF LIST.  FOR NEW SEARCH PRESS S AND RETURN: S
```

8300/2510-8

Figure 9. Syracuse Brief Level Display of Multiple Bibliographic Records

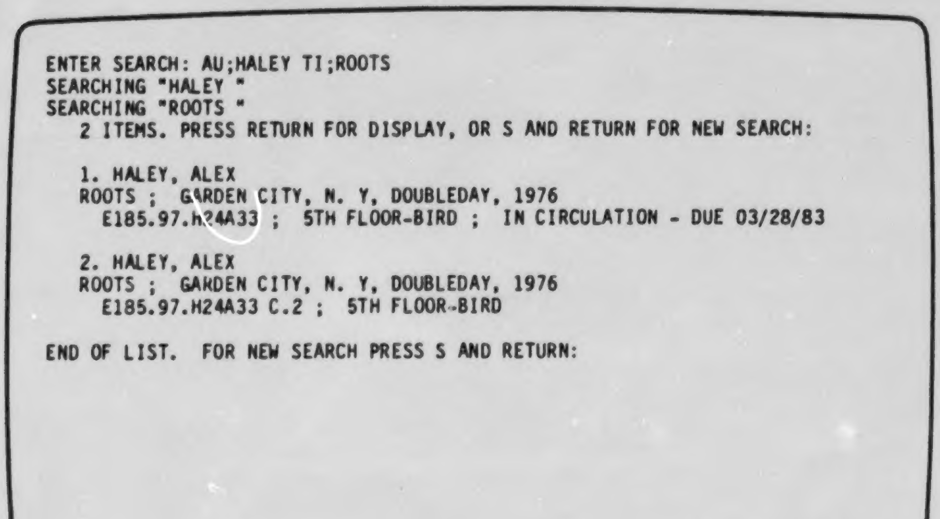
OPAC users at Syracuse and Iowa City Public and faculty users at Ohio State found it easy to locate call numbers in the bibliographic records of their respective libraries' online public access catalogs. Since a number of bibliographic record displays varied in length and amount of detail, only those displays that users most frequently consulted (from our experience in focus group interviews and analyzing OPAC transaction logs) are covered in this discussion.

In Syracuse's brief level record displays, call numbers were formatted into an unlabeled block of text and located on the far left side of the last line of text (see Figure 10). Call numbers in Ohio State's circulation and full bibliographic record displays occurred on the far left side of the first line of text, i.e., a placement roughly analogous to the call number's placement on cards in a traditional library catalog (see Figure 11). Similarly, call numbers in Iowa City Public's brief records were placed on the far left side of the first line of text. None of the call number fields were labeled in the brief level displays of bibliographic records in the OPACs of Iowa City, Syracuse, and OCLC (see Figures 5-9). Since transaction log analysis (see Volume I) and observations by library staff at Syracuse and Iowa City Public noted that patrons seldom proceeded to full level displays of bibliographic records (see Figures 1 and 4), it can be speculated that the brevity of brief level displays was in part responsible for users' ability to pick out the call number from the few lines of text. Furthermore, the call numbers in bibliographic records of the Ohio State, Syracuse, and Iowa City Public OPACs were not embedded in the block of text but located on the outer edge of the block of text, which patrons might have found easy to distinguish from other lines of text.

Library staff in some focus group interviews noted patrons' difficulty finding and/or identifying call numbers on OPAC record displays. The Mankato State OPAC designated the call number field by the term "LOCTN", and some reference staff felt that the term "call number" would be more informative to patrons. In contrast, Iowa City reference staff noted patrons' confusion when finding call numbers among the many fields of full bibliographic records (see Figure 4) and suggested changing the term "call number" to "location."

- Change "location" to "call number." And tell patrons what floor to go to. (Mankato State, reference staff)

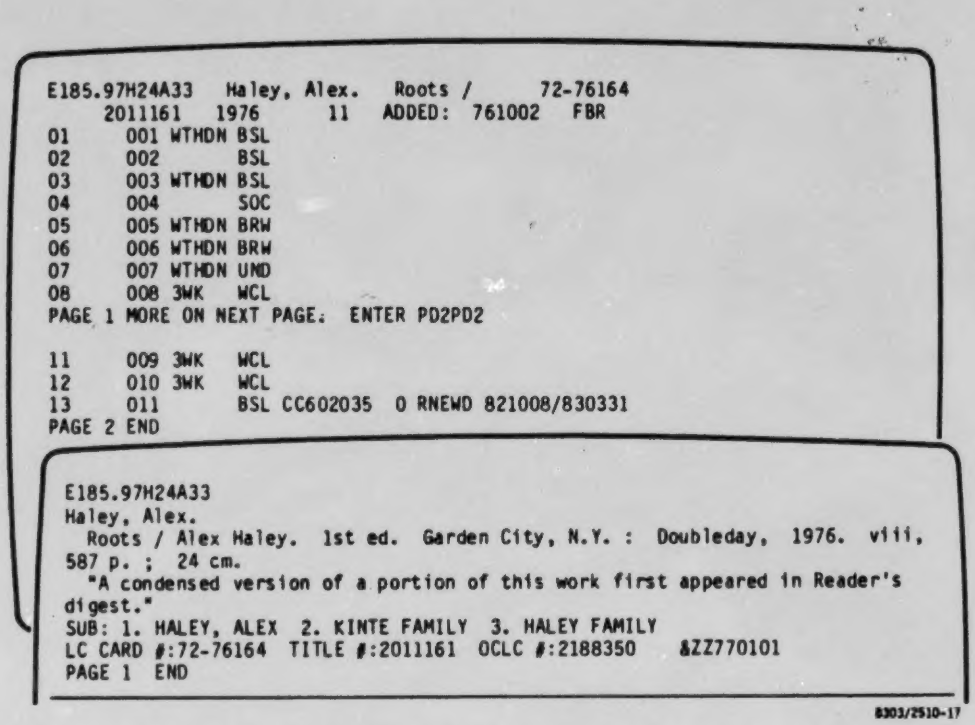
- Patrons think "LOC" is the call number. They show it to me and we have to redo the search from scratch. Maybe call number should be renamed because patrons don't know what it means; "location number" might be better. (Iowa City Public, reference staff)



```
ENTER SEARCH: AU;HALEY TI;ROOTS
SEARCHING "HALEY "
SEARCHING "ROOTS "
   2 ITEMS. PRESS RETURN FOR DISPLAY, OR S AND RETURN FOR NEW SEARCH:

   1. HALEY, ALEX
   ROOTS ;  GARDEN CITY, N. Y, DOUBLEDAY, 1976
     E185.97.H24A33 ;  5TH FLOOR-BIRD ;  IN CIRCULATION - DUE 03/28/83

   2. HALEY, ALEX
   ROOTS ;  GARDEN CITY, N. Y, DOUBLEDAY, 1976
     E185.97.H24A33 C.2 ;  5TH FLOOR-BIRD

END OF LIST.  FOR NEW SEARCH PRESS S AND RETURN:
```

8303/2510-19

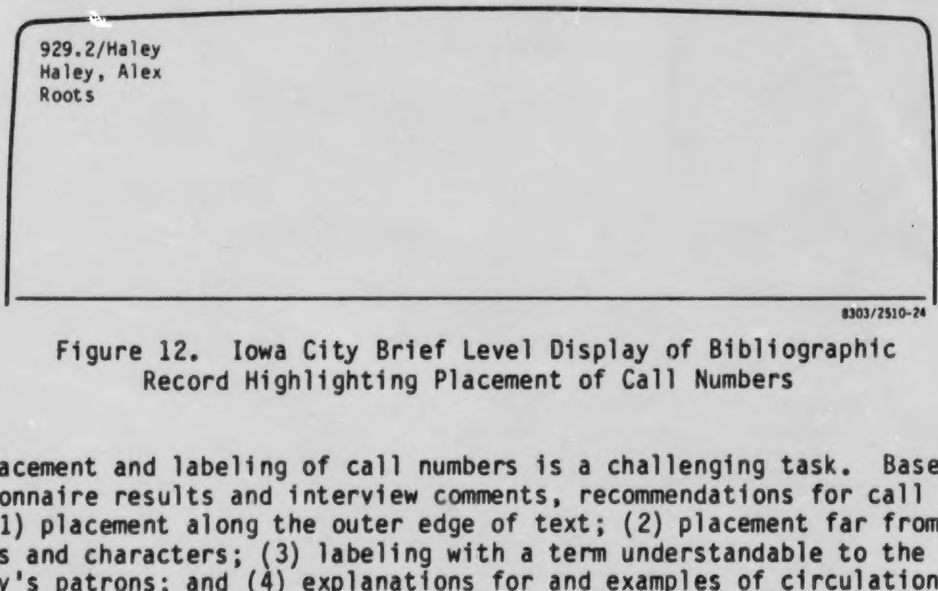
Figure 10. Syracuse Brief Level Display of Bibliographic Records Highlighting Placement of Call Numbers



```
E185.97H24A33   Haley, Alex.   Roots /      72-76164
     2011161   1976       11   ADDED:  761002   FBR
01       001 WTHDN BSL
02       002       BSL
03       003 WTHDN BSL
04       004       SOC
05       005 WTHDN BRW
06       006 WTHDN BRW
07       007 WTHDN UND
08       008 3WK   WCL
PAGE 1 MORE ON NEXT PAGE:  ENTER PD2PD2

11       009 3WK   WCL
12       010 3WK   WCL
13       011       BSL CC602035  0 RNEWD 821008/830331
PAGE 2 END
```

```
E185.97H24A33
Haley, Alex.
  Roots / Alex Haley.  1st ed.  Garden City, N.Y. :  Doubleday,  1976.  viii,
587 p. ;  24 cm.
  "A condensed version of a portion of this work first appeared in Reader's
digest."
SUB: 1. HALEY, ALEX  2. KINTE FAMILY  3. HALEY FAMILY
LC CARD #:72-76164  TITLE #:2011161  OCLC #:2188350    &ZZ770101
PAGE 1  END
```

Figure 11. Ohio State Circulation Record and Full Biblographic Record Displays Highlighting Placement of Call Numbers



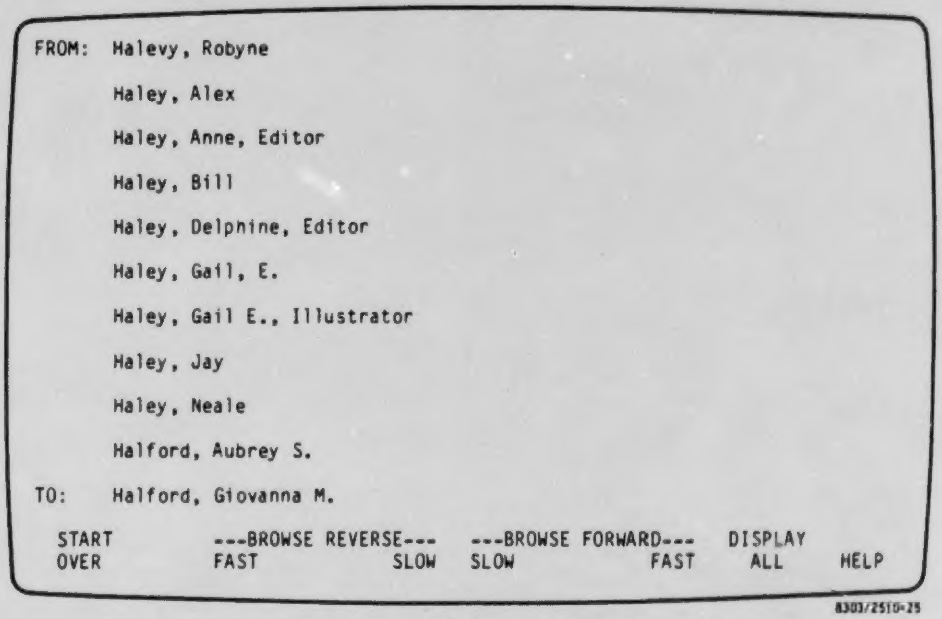
```
929.2/Haley
Haley, Alex
Roots
```

Figure 12. Iowa City Brief Level Display of Bibliographic Record Highlighting Placement of Call Numbers

The placement and labeling of call numbers is a challenging task. Based on questionnaire results and interview comments, recommendations for call numbers are: (1) placement along the outer edge of text; (2) placement far from other numbers and characters; (3) labeling with a term understandable to the library's patrons; and (4) explanations for and examples of circulation and bibliographic record displays in offline and online user aids such as brochures, help messages, etc.

Iowa City Public's OPAC was the one system whose users reported ease in understanding order of displayed items (see Table 50). Our knowledge of and experience with this OPAC led us to believe that survey respondents had in mind the alphabetical arrangement of successive levels of touch screens rather than the order of bibliographic records displayed in response to finding the access point of interest. When touching successive screens, users always had to be conscious of the name, title, subject heading, or call number that came alphabetically or numerically before the name, title, subject heading, or call number of interest in order to arrive at the desired screen.

Iowa City Public's OPAC users also favorably cited the memorability of the order of commands or of a particular command in the course of the search. Commands possible at any particular moment in the search were listed in a horizontal array at the bottom of touch screens. Figure 13 is an example of an OPAC screen at Iowa City Public in which the searcher performed an author search for Alex Haley, successfully proceeded from touch screen to touch screen of author names down to the lowest level of author names. The user's next step was to press the line on which "Haley, Alex" appeared to obtain a list of books written by him and owned by the library.



```
FROM:  Halevy, Robyne

       Haley, Alex

       Haley, Anne, Editor

       Haley, Bill

       Haley, Delpnine, Editor

       Haley, Gail, E.

       Haley, Gail E., Illustrator

       Haley, Jay

       Haley, Neale

       Halford, Aubrey S.

TO:    Halford, Giovanna M.
```

Figure 13. Iowa City Author Touch Screen Highlighting Horizontal Array of Possible Command Choices

Some Iowa City patrons were stymied by such touch screens and arrays of commands and suggested alterations to help direct them in determining their next step. Focus group remarks at Iowa City Public were as follows:

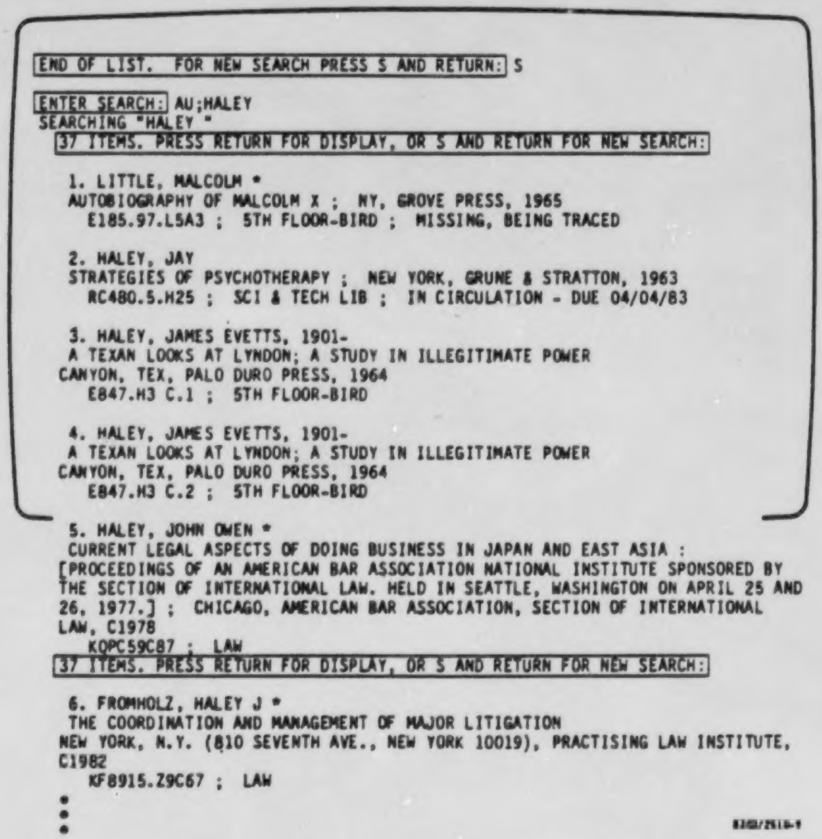
- After you've done a step, the computer could tell you what you should do next. (High school light users)

- The computer really doesn't give suggestions down at the bottom. You have to push the right one. Maybe if the next logical step would light up. (Older adults light users)
- We need a line of text to help people know what to do next. (Technical services staff)

This section covered output control features with which surveyed OPAC users had favorable experiences. Bibliographic record and circulation displays of individual systems were studied and featured in discussions of single and multiple record displays and positioning call number fields within records. Iowa City Public's OPAC was the only system in which patrons reported ease in understanding the order of displayed items. Patrons were most likely referring to the alphabetic arrangement of touch screen displays, not to the order of displayed citations. Also, horizontal array of touch commands at the bottom of screen displays might have helped Iowa City Public's patrons remember the correct sequence of entering commands and the correct command to input in the ongoing search.

6.2.3 Online User Assistance

The list of OPAC features with which users expressed favorable experiences (see Table 50) included online user assistance features for which two systems were noted. Syracuse OPAC users cited the ease with which they understood the system's initial instructions and screen explanations. With regard to initial instructions, Syracuse patrons were instructed by the system (at certain points in the search) to enter "S" to begin a new search. Other online messages or explanations appeared when users were successful matching their input access point(s) with the contents of the OPAC's indexes and when there were retrieved items to display. The Syracuse OPAC guided users by telling them: (1) how to begin searches; and (2) how to display retrieved items. Figure 14 is an example of an online search for the author Herman Wouk in which such directive prompts are highlighted.



```
END OF LIST.  FOR NEW SEARCH PRESS S AND RETURN: S

ENTER SEARCH: AU;HALEY
SEARCHING "HALEY "
  37 ITEMS. PRESS RETURN FOR DISPLAY, OR S AND RETURN FOR NEW SEARCH:

   1. LITTLE, MALCOLM *
   AUTOBIOGRAPHY OF MALCOLM X ;  NY, GROVE PRESS, 1965
     E185.97.L5A3 ;  5TH FLOOR-BIRD ;  MISSING, BEING TRACED

   2. HALEY, JAY
   STRATEGIES OF PSYCHOTHERAPY ;  NEW YORK, GRUNE & STRATTON, 1963
     RC480.5.H25 ;  SCI & TECH LIB ;  IN CIRCULATION - DUE 04/04/83

   3. HALEY, JAMES EVETTS, 1901-
   A TEXAN LOOKS AT LYNDON; A STUDY IN ILLEGITIMATE POWER
  CANYON, TEX, PALO DURO PRESS, 1964
     E847.H3 C.1 ;  5TH FLOOR-BIRD

   4. HALEY, JAMES EVETTS, 1901-
   A TEXAN LOOKS AT LYNDON; A STUDY IN ILLEGITIMATE POWER
  CANYON, TEX, PALO DURO PRESS, 1964
     E847.H3 C.2 ;  5TH FLOOR-BIRD

   5. HALEY, JOHN OWEN *
   CURRENT LEGAL ASPECTS OF DOING BUSINESS IN JAPAN AND EAST ASIA :
  [PROCEEDINGS OF AN AMERICAN BAR ASSOCIATION NATIONAL INSTITUTE SPONSORED BY
  THE SECTION OF INTERNATIONAL LAW. HELD IN SEATTLE, WASHINGTON ON APRIL 25 AND
  26, 1977.] ;  CHICAGO, AMERICAN BAR ASSOCIATION, SECTION OF INTERNATIONAL
  LAW, C1978
     KOPC59C87 ;  LAW
  37 ITEMS. PRESS RETURN FOR DISPLAY, OR S AND RETURN FOR NEW SEARCH:

   6. FROMHOLZ, HALEY J *
   THE COORDINATION AND MANAGEMENT OF MAJOR LITIGATION
  NEW YORK, N.Y. (810 SEVENTH AVE., NEW YORK 10019), PRACTISING LAW INSTITUTE,
  C1982
     KF8915.Z9C67 ;  LAW
  •
  •
  •
```

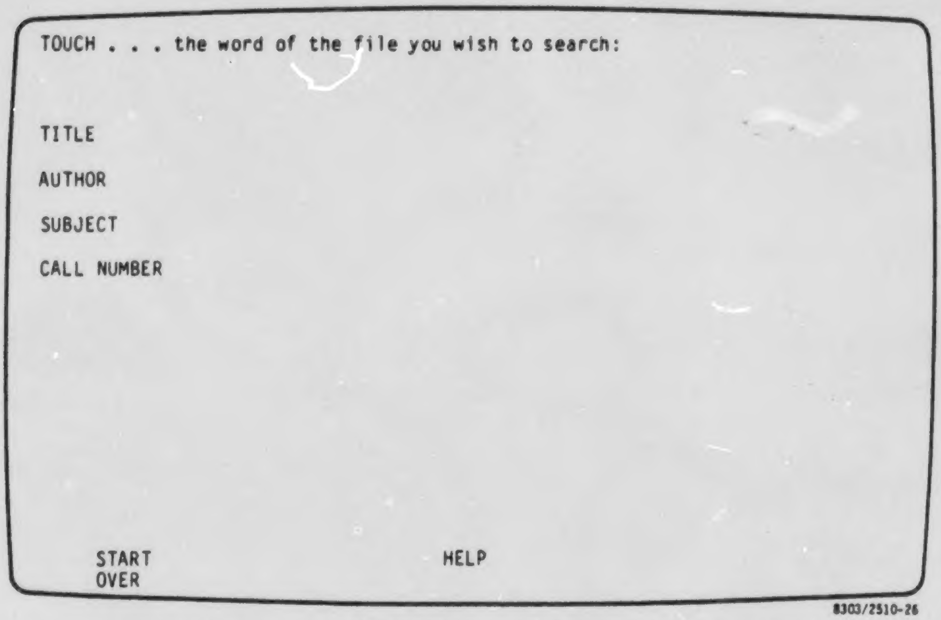
Figure 14. Search for Author Herman Wouk in Syracuse OPAC Highlighting Directive Prompts

Patrons at Iowa City Public cited the ease with which the OPAC's initial instructions, screen explanations, and displayed messages were understood. With regard to screen explanations and messages, users were probably referring to horizontal arrays of commands. These arrays and patrons' problems understanding them were covered in section 6.2.2. In general, such arrays jogged the user's memory during the search. It was doubtful that users were referring to the full-page help screens (available at any time by touching the help command at the bottom of the screen) in their questionnaire responses to questions about screen explanations and displayed messages. Iowa City Public's library staff were concerned about the usefulness of help screens because of users' behavior during online searches:

- The only time people use help screens is out of curiosity or when they accidently touch them. (Reference staff)
- "Help" is useless. If anyone ever touches "help," they immediately get out of it. (Technical services staff)
- Our "Help" doesn't help much. We tell patrons to read the "HELP" and they walk away. They won't read and study. Maybe we need a sentence at the top of the screen that says "now do this." (Reference staff)

Conversations with individual library staff members pointed out that patrons were embarrassed to be seen reading help screens, especially when other patrons were waiting to use the terminal. This underlines the need for a type of online dialog that helps searchers in a supportive but discreet fashion. The research of Clark (1982), who is testing the theory of supplantation in the online retrieval environment, is promising with respect to discreetly instructing patrons at the same time they perform their online searches.

The initial instruction screen of the Iowa City Public's OPAC was noted by patrons as being particularly understandable. This initial screen, reproduced in Figure 15, was the library's second attempt to arrive at a brief but informative starting point for users. Patrons complained about the length of instructions in the library's first attempt, so the initial screen was simplified to its present state. Iowa City Public's experience with initial screens is proof that the ability to change OPAC screen displays, help messages, command names, field names, etc., is an important consideration in the introduction of an online public access catalog to the library.



TOUCH . . . the word of the file you wish to search:

TITLE

AUTHOR

SUBJECT

CALL NUMBER

START OVER

HELP

8303/2510-26

Figure 15. Initial Screen Instructions of the Iowa City Public Library's OPAC

6.2.4 Offline User Assistance and OPAC Services

An in-depth look at online and offline user assistance is taken in sections 7.1, 7.3 and 7.4. A brief analysis of patrons' questionnaire responses with respect to user assistance follows. The helpfulness of library staff's advice was rated very highly by users of the Ohio State, Dallas, and Iowa City Public OPACs and by OCLC users. Whereas Iowa City Public and Syracuse users might have relied on online user assistance, OPAC users at Ohio State and OCLC users probably sought printed brochures to assist them in the online searches, given the ranked responses to the features questions summarized in Table 50. Ohio State patrons also noted the availability of offline user aids. LCS terminals at Ohio State were equipped with an attached holder in which photocopied brochures folded in an accordion-like fashion were placed. The filled holders resembled supplies of bus schedules. Ohio State's brochures on OPAC use were attractively presented but neither required an expensive reproduction procedure nor dissuaded patrons from using the brochure once and discarding it or leaving it at the online terminal workstation.

The Ohio State University was the only institution whose library patrons did not clamor for more terminals in campus libraries. Section 6.3.7 on offline user assistance covers in detail library patrons' desire for more terminals and problems wrought by queues at OPAC terminals.

6.3 USERS' UNFAVORABLE EXPERIENCES WITH OPAC FEATURES

Table 53 lists questionnaire statements about OPAC features and lists the rank each statement achieved in comparative analyses of the "average" of responses from all users of a particular system, heavy users, and university faculty (at academic libraries). Regardless of the statements' positive or negative wording in the questionnaire, the statements listed in Table 53 are accompanied by a number, i.e., rank, which designates OPAC features with which OPAC users had unfavorable experiences. The ensuing discussion on "Unfavorable Features" not only highlights OPAC features that users rated unfavorably but suggests how such features could be improved.

Table 53. Unfavorable Experiences with OPAC Features

	Syracuse			Ohio State			OCLC System			Dallas Pub.		Iowa City Pub.	
Statements:†	All Users	Heavy Users	Fac.	All Users	Heavy Users	Fac.	All Users	Heavy Users	Fac.	All Users	Heavy Users	All Users	Heavy Users
ACCESS POINTS													
13. A computer search by subject	4	4	3	3	3	3	NA	NA	NA	6			6
14. A computer search by call number													1
17. Finding the correct subject term	2	2	2	2	2	1	NA	NA	NA	3	3.5	3	3
OPERATIONAL AND SEARCH FORMULATION CONTROL													
25. Searching with a short form of a name or word (truncation)	3	3		2	2	3		4		5		NA	NA
31. Interrupting or stopping the display of information				3.5	4	2		1	5				
OUTPUT CONTROL													
19. Increasing the result when too little is retrieved	1	1	4	1	1	2	1	3	2	2	2	2	2
20. Reducing the result when too much is retrieved	1	1	1	3.5	3	4	3.5	3	5	3	2	2	2
23. Understanding abbreviations on the screen							2						
37. Entering commands when I want to during the search process	5	5		4	4		4	4	3	5	5	4	5
38. The rate at which the computer responds			1				2	1	1	1	1	5	4
OFFLINE USER ASSISTANCE													
33. Knowing what is included in the computer catalog	2	2	2	1	1	1	1	2	1	1	1	1	3
39. Availability of signs and brochures							3.5	3	3	2	3		4
42. Availability of free terminals	3	3	5				3	2	4	4	3.5	1	1

---

*In rank order; 1 = most unfavorable response
†Segregation of positively and negatively worded questions resulted in two sets of ranked statements per user group analysis.

6.3.1 Subject Access

The responses to two questionnaire statements about subject searching revealed that users had difficulty with this access point. Quantitative methods such as surveys shed little light on the nature of users' difficulties. Fortunately, however, the analysis of focus group interviews resulted in a category of users' comments about "finding the right subject headings" and provided descriptive accounts about subject-access difficulties. Such descriptive accounts were recited at all six focus group sites. Subject searching was difficult at all systems studied through questionnaires and/or focus groups.

A number of focus group comments disclosed that patrons were able to express verbally what topic they were looking for but were unable to match their term(s) with those indexed in the online public access catalog. Nonusers indicated that they had the same problem when searching the library's traditional catalog:

- I've run into some problems with topics where I know the library has something but I punch in the wrong terms, like I kept getting Spanish Civil War titles in a search for Spanish American War. (Mankato State, library graduate assistants)

- It's discouraging not to find your term (in the OPAC); but I "free-associate" using TERM (component word) search. Finding terms to input is a problem. (Mankato State, faculty users)

- I don't really have it down on how to put words in so that I get out what I really want. I enter a description of what I want and when it doesn't describe accurately for the computer what I want, I get frustrated. (Syracuse, graduate light users)

- Sometimes you can't find a thing you're looking for. I was looking for "Medieval battles" and all I could find was World War II stuff. After ten minutes, I had to go ask the librarian. It's a hassle looking for specific stuff. (Iowa City, 6th grade school users)

- In the card catalog it was frustrating because I don't know what subject to look under, e.g., "Alienism in Marxism," which do I look under? (Library of Congress, legislative intern nonusers)

Patrons noted that their search term(s) might be too specific or too general. In their attempts to match their terminology with that of the computer catalog, patrons related that they carried the burden of conjuring up broader or narrower terms.

- I did a paper on birth order, and I needed words more specific to birth order. I just never found the right term. (Mankato State, graduate users)

- The more specific my topic is, the less likely I am to find the term listed in the computer. So I use a broad topic. (Ohio State, undergraduate users)

- I am usually too specific. In a search for "teenage pregnancies," I had to use "pregnancies," look through a lot of books a few of which mentioned teenage pregnancies. Then I took down their numbers, went to the stacks, and found more books. (Syracuse, undergraduate users)
- I either put in a subject that's too broad or one that's so specific, the library has nothing on it. I don't know how to organize my choice of subjects. (Syracuse, faculty users)

Library patrons recognized their reliance on the library staff to help them find the right subject heading. Library staff gave accounts of their assistance to patrons who were having problems finding subject terminology:

- When I can't find my term, I panic; I go to the information desk and have the librarian look up what my topic is under. (Iowa City Public, high school computer class users)
- Sometimes I have to use the dictionary to make sure a word is spelled right. A lot of times, the patron just isn't using the right word so we'll suggest others. (Mankato State, library student supervisors)
- I help patrons find subjects. (Syracuse, departmental reference staff)

Patrons' comments on their efforts to use the printed volumes of LCSH were especially gloomy. They found a term or phrase in LCSH that was not in the library's OPAC. They didn't understand the "x," "xx," or "s.a." references. The volumes of LCSH were not near the patron's terminal, and leaving the terminal momentarily meant giving up the terminal to another user. Subdivision practice was confusing to patrons.

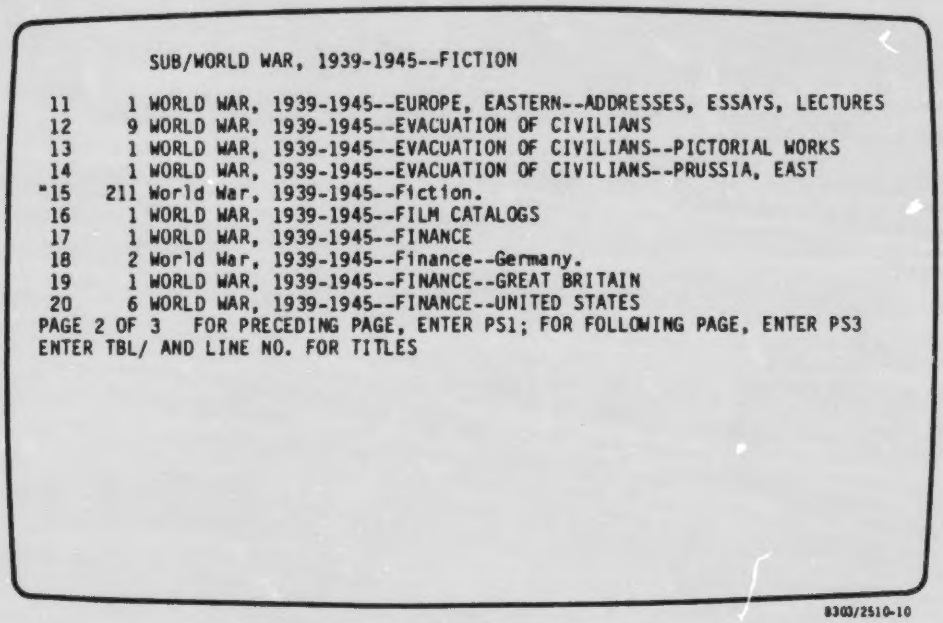
- I don't use LCSH because it seems faster to just keep typing terms in. And LCSH is not close to the terminals. The x's in LCSH are confusing -- you have to think about what they mean. (Mankato State, graduate users)
- It's disappointing when the subject is listed in LCSH but there are no books in our libraries on that subject. (Ohio State, undergraduate users)
- I never use LCSH books. (Syracuse, faculty users)

Saddled with finding the right subject heading, patrons noted that they entered many different terms until they matched the OPAC's indexed subject headings or terms or depleted their supply of subject terms and gave up the search. Instead of placing the burden of subject searching on library patrons, existing online public access catalogs must be enhanced with online user aids to assist in the selection of subject vocabulary, to facilitate browsing, and to provide additional information for making relevance assessments. The following section describes ideas for such online user aids culled from focus group interview comments, questionnaire results, and knowledge of online user aids in other online bibliographic retrieval systems.

6.3.2 Suggested Online User Aids to Assist Subject Searchers

6.3.2.1 Alphabetical Displays of Subject Headings

Focus group interview participants were asked what characteristics they liked about the card catalog that should be carried over to the online public access catalog. Participants at a number of libraries, particularly those who had consulted OPACs without online displays of subject headings in alphabetical order, cited that the ease of browsing subject headings in the traditional library catalog was a requirement in online public access catalogs. Alphabetical displays of subject headings could be produced in a number of OPACs. An example of Ohio State's alphabetical subject heading display is given in Figure 16.



```
          SUB/WORLD WAR, 1939-1945--FICTION

 11      1 WORLD WAR, 1939-1945--EUROPE, EASTERN--ADDRESSES, ESSAYS, LECTURES
 12      9 WORLD WAR, 1939-1945--EVACUATION OF CIVILIANS
 13      1 WORLD WAR, 1939-1945--EVACUATION OF CIVILIANS--PICTORIAL WORKS
 14      1 WORLD WAR, 1939-1945--EVACUATION OF CIVILIANS--PRUSSIA, EAST
*15    211 World War, 1939-1945--Fiction.
 16      1 WORLD WAR, 1939-1945--FILM CATALOGS
 17      1 WORLD WAR, 1939-1945--FINANCE
 18      2 World War, 1939-1945--Finance--Germany.
 19      1 WORLD WAR, 1939-1945--FINANCE--GREAT BRITAIN
 20      6 WORLD WAR, 1939-1945--FINANCE--UNITED STATES
PAGE 2 OF 3   FOR PRECEDING PAGE, ENTER PS1; FOR FOLLOWING PAGE, ENTER PS3
ENTER TBL/ AND LINE NO. FOR TITLES
```

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Figure 16. Alphabetical Subject Heading Display from Ohio State's OPAC

6.3.2.2 Keyword-in-Context Subject Heading Displays

Unfortunately, most OPAC users could activate the display of alphabetical subject heading lists only by matching the first word of the subject heading, much like searching the traditional library catalog. Keyword-in-context subject heading displays could be activated by matching any term(s) in the subject headings. The University of California's OPAC, MELVYL, has been outfitted with such a keyword-in-context display of subject headings. Figure 17 is an example of the MELVYL keyword-in-context feature in which the subject heading "Islam" has been entered. The display shows that subject headings beginning with Islam, or with Islam embedded in the heading or concluding the heading, are listed. Simplifications of keyword-in-context subject heading displays have been suggested by Cochrane (1982b) and Markey (1983) through the categorization of lengthy displays, such as the example in Figure 17 in which 254 subject headings were found. An option would be given to the user, in a preliminary report of the number of subject headings found, to display subject headings by type of subdivision, e.g., geographic, chronological, etc.

```
Browse request:  BROWSE SU ISLAM
Browse result:   254 subject headings found in the subject index

  1.  Authority (Islam)
  2.  Bibliography -- Bibliography -- Islam
  3.  Birth control -- Religious aspects -- Islam
  4.  Birth control -- Religious aspects -- Islam -- Congresses
  5.  Blasphemy (Islam)
  6.  Christianity and other relgions -- Islam
  7.  Christianity and other religions -- Islam
  8.  Christianity and other religions -- Islam -- Addresses, essays, lectures
  ●
  ●
  ●
 33.  God (Islam) -- Proof
 34.  Good and evil (Islam)
 35.  Hinduism -- Relations -- Islam
 36.  Intermediate state (Islam)
 37.  Islam
 38.  Islam (The Arabic word)
 39.  Islam -- Addresses, essays, lectures
 40.  Islam -- Africa
 41.  Islam -- Africa -- Addresses, essays, lectures
 42.  Islam -- Africa -- Bibliography
 43.  Islam -- Africa -- Congresses
 44.  Islam -- Africa, East
  ●
  ●
  ●
230.  Science -- Islam -- Bibliography
231.  Sex and Islam
232.  Sex and Islam -- Congresses
233.  Sikhism -- Relations -- Islam
234.  Sin (Islam)
235.  Slavery and Islam -- Africa, East
236.  Socialism and Islam
  ●
  ●
  ●
253.  Tabrizi, Sigat al-Islam Shahid, 1860-1911
254.  Vereeniging Sarekat Islam
```

Figure 17. Keyword-in-Context Display of Subject Heading from the University of California's MELVYL

6.3.2.3 Online Displays of Related Subject Headings

Library patrons were asked in the user questionnaire to select up to four additional features they would like developed in the online public access catalog. Table 54 lists the top six features ranked in order by the number of responses for CLR-aggregate and OCLC-aggregate libraries. The rank order changes little in a comparison of the two aggregates. Three of the six top-ranked additional features are pertinent to subject searching. The first ranked feature underlines the great need for cross-references and lists of related terms in OPACs.

Table 54. CLR- and OCLC-Aggregates: Six Top-Ranked Additional OPAC Features

Rank (CLR-Aggregate)	Rank* (OCLC-Aggregate)†
1. Ability to view a list of words related to my search words	1
2. Ability to search a book's table of contents, summary or index	2
3. Ability to know if a book is checked out	3
4. Ability to print search results	4
5. Searching by any word or words in a subject heading	6
6. Providing step-by-step instructions	5
N(responses) = 21,793	N(responses) = 11,460

*In rank order; 1 = most frequent response
†Features have been ranked after deleting responses by users whose library's OPAC already contains the feature.

The need for cross-references and related term lists also emerged in a number of focus group interviews when participants were asked what they liked about the traditional library catalog that should be carried over to the OPAC and what new features they would like in OPACs. The following responses are from focus group participants regarding their requests for the addition of cross-references to the OPAC.

- Need cross-references online; in a search for "children and apes," I took 12 tries before I found apes under some form of monkey or chimpanzee. If this help was in the computer, it would be especially helpful for foreign students. (Syracuse, faculty users)
- I would like to type in what subject I'm looking for and the computer would type back to me, try this term or that. (Mankato State, undergraduate new users)
- Periodical indexes list "see also" references; why can't LCS? (Ohio State, undergraduate nonusers)

- If the computer says "see _____," it should lead you right to the see reference rather than you having to find it all over again. (Iowa City Public, high school computer class users)

- Cross-references (are needed) so I don't have to know the darn way the librarian called it. (Library of Congress, General Reading Room users)

- If there are no matches (in the computer), it should say "try _____." (Dallas Public, middle school users)

When participants described how such a cross-reference feature would work, their descriptions resembled the way the University of California's OPAC handles author cross-references; i.e., the system actually searches under the "legal" or preferred name and informs the searcher of the result rather than the searcher's having to input the preferred name to obtain search results. Hildreth (1982, pp. 120-121) covered the approach to name authority control employed by the University of California OPAC and provided examples.

Like survey respondents, focus group participants also expressed great interest in displays of related terms. Examples of their comments follow:

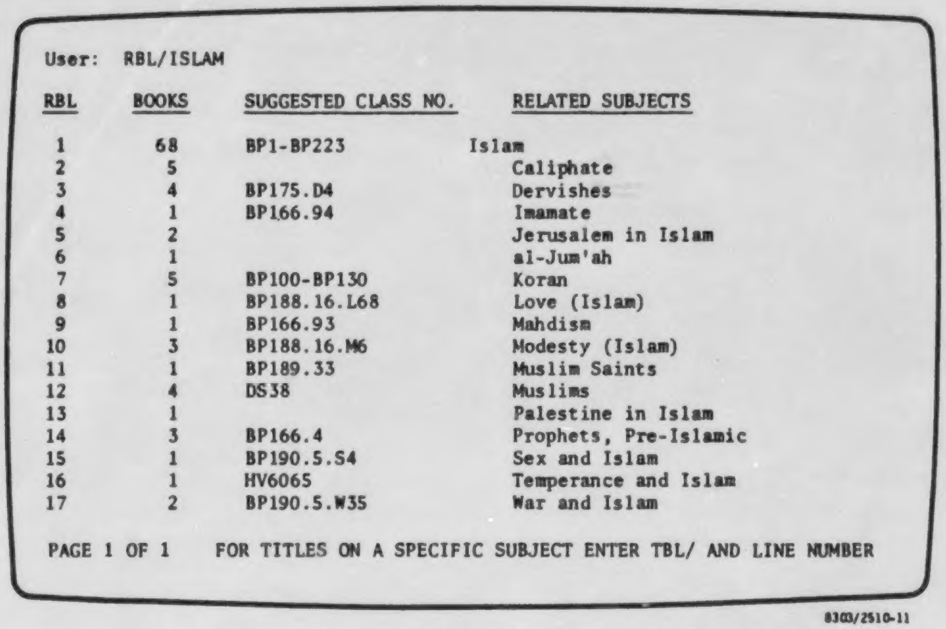
- I'd want the LCSH online. (Mankato State, undergraduate users)

- Instead of the computer accepting any term, it should list "see also" references, e.g., see also land tenure, agriculture, and so on, for agrarian reform. (Syracuse, reference staff)

- I hope the computer will cut down on wasted time when a subject or name isn't in the computer; it would suggest names to you. (Ohio State, undergraduate nonusers)

- (I would like a list of) related subjects to whatever you are looking under. (Library of Congress, legislative intern nonusers)

An example of what LCSH related term displays might look like in the online public access catalog is given in Figure 18. The example was compiled from the "see also" references listed under "Islam" in the printed LCSH; the class numbers that accompanied subject headings in the printed LCSH were included in the display to accommodate the search tactics of bookshelf browsers (Markey, 1983, p. 84).



```
User:  RBL/ISLAM

RBL      BOOKS     SUGGESTED CLASS NO.     RELATED SUBJECTS

 1        68       BP1-BP223           Islam
 2         5                               Caliphate
 3         4       BP175.D4                Dervishes
 4         1       BP166.94                Imamate
 5         2                               Jerusalem in Islam
 6         1                               al-Jum'ah
 7         5       BP100-BP130             Koran
 8         1       BP188.16.L68            Love (Islam)
 9         1       BP166.93                Mahdism
10         3       BP188.16.M6             Modesty (Islam)
11         1       BP189.33                Muslim Saints
12         4       DS38                    Muslims
13         1                               Palestine in Islam
14         3       BP166.4                 Prophets, Pre-Islamic
15         1       BP190.5.S4              Sex and Islam
16         1       HV6065                  Temperance and Islam
17         2       BP190.5.W35             War and Islam

PAGE 1 OF 1     FOR TITLES ON A SPECIFIC SUBJECT ENTER TBL/ AND LINE NUMBER
```

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Figure 18. Related Term Display with Class Areas Constructed from *Library of Congress Subject Headings*

6.3.2.4 Augmented Subject Access to Bibliographic Records in OPACs

In response to a survey question on additional features, OPAC users' ranked second the ability to search a book's index, table of contents, or summary (see Table 54). Atherton's Subject Access Project demonstrated that the indexes and tables of contents of monographs contained suitable information to produce augmented subject descriptions and determined the cost of inputting, storing, and searching augmented bibliographic records to books (Atherton, 1978, p. 84). Atherton's four benefits derived from the research project would be pertinent to patron searching of online public access catalogs with augmented subject descriptions: (1) greater access to the books with relevant information; (2) greater precision, insuring fewer non-relevant items in the search output of augmented MARC records than in the output of MARC records; (3) less costly online searching than MARC searching; (4) ability to answer some queries impossible using today's catalog information (Atherton, 1978, p. iv).

Appending terms and phrases from books' indexes and/or tables of contents to MARC records and processing these terms and phrases into the searchable indexes of OPACs would increase patrons' likelihood of matching their subject terms with those contained in the searchable indexes of OPACs and help patrons to assess the relevance of retrieved items. Of interest to library staff would be Atherton's finding that searching augmented MARC records was less costly than searching MARC records, i.e., less time was spent online.

Library patrons were eager for the addition of any information to MARC records that would give them information about the subject contents of books. Many participants in focus group interviews wanted additional subject information included in bibliographic records. Below are sources of subject information for books and the focus groups that mentioned each source.

- Indexes and Tables of Contents of Books (Mankato State, undergraduate new users, undergraduate users, graduate users, graduate light users; Syracuse, undergraduate users, graduate users, department reference staff; Ohio State, faculty nonusers, faculty users, Telephone Information Center; Dallas Public, adult nonusers, Martin Luther King Branch users, middle school users; Library of Congress, Science Reading Room users)
- Annotations, Summaries, or Abstracts of Books (Mankato State, undergraduate users, graduate light users, library graduate assistant users, faculty users; Syracuse, undergraduate users; Ohio State, faculty users, Telephone Information Center; Dallas Public, adult nonusers, middle school users; Iowa City Public, university library school users; Library of Congress, shelf holders light users, nonusers, legislative intern nonusers, Congressional Research Service staff users)
- Titles of essays in volumes of collected works or in Festchriften (Syracuse, faculty users, faculty light users)
- Individual musical pieces on sound recordings (Mankato State, faculty users; Syracuse, technical services staff; Ohio State, faculty users; Iowa City Public, reference staff)
- Evaluative information such as book reviews, intended audience(s) of books (Mankato State, faculty users, graduate light users; Syracuse, graduate light users; Dallas Public, teenage library club)
- Introductions of Books (Dallas Public, teenage library club)
- Description of book jacket material (Syracuse, undergraduate users)
- Assignment of More Subject Headings to Books (Syracuse, graduate users; Library of Congress, General Reading Room users, Science Reading Room users)

6.3.2.5 Automatic Linking of Free Text Terms to the OPAC's Controlled Vocabulary

Component word searching of subject headings, titles, or combinations of subject-rich fields of MARC records, and/or subject augmentation of MARC records, e.g., tables of contents, book introductions, will probably improve the searchers' ability to match their entry vocabulary with the vocabulary of online public access catalogs. But such features will not improve the recall of online searches. For example, a library patron who inputs "space shuttles" would retrieve books whose tables of contents or titles contain such terms but would miss the many books assigned the approved subject heading, i.e., "Reusable space vehicles," used to represent the concept of space shuttles.

Mischo (1981) and Atherton and Markey (1979) described a subject retrieval capability that would link free text terms to their corresponding controlled vocabulary. Horowitz and Bleich (1981) described the PaperChase retrieval system for end user searching of biomedical journal literature at Beth Israel Hospital, Boston. Based on an analysis of Medical Subject Headings (MeSH), PaperChase suggested subject headings that were common to the greatest number of retrieved citations. The feature was activated by the system itself when the user's input search terms matched free text, e.g., title words, in retrieved citations.

A feature comparable to the PaperChase retrieval system is suggested for OPACs to make use of the controlled vocabulary's collocative function and to dispel the anarchy that would reign as a result of unlimited component word searching of subject-rich fields of MARC records and/or augmented MARC records.

6.3.2.6 Inclusion of Subject Headings in Bibliographic Record Displays

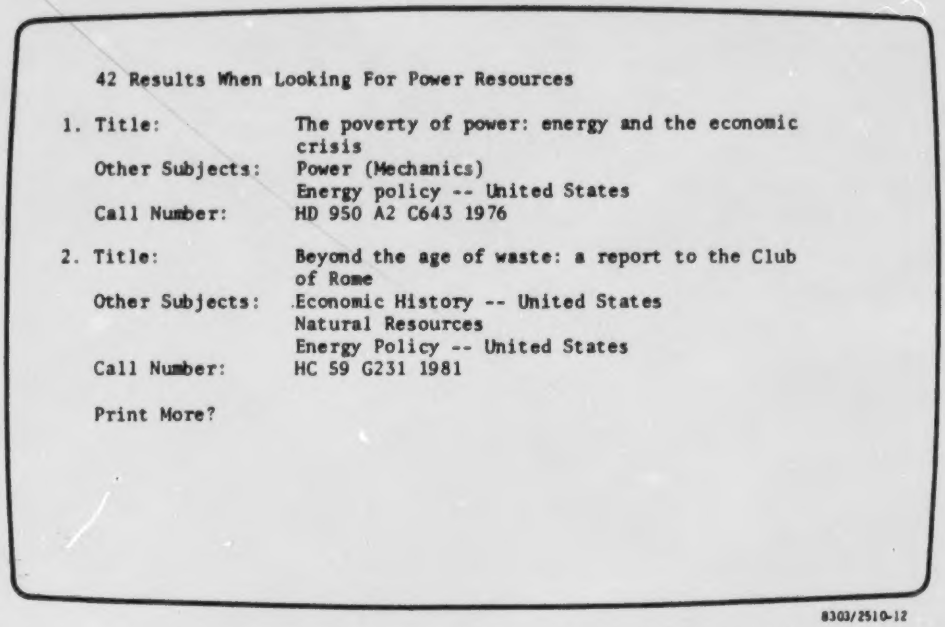
An automatic linkage from free text to controlled vocabulary (such as the one implemented in the PaperChase retrieval system) would perform the same function as the librarian who assisted a patron by scanning the subject heading assigned to a relevant item and suggesting these subject headings to the patron to find more items like the one relevant item. Library staff in focus groups related the following incidents illustrating their assistance to patrons:

- Students do not know to look under the full bibliographic record to find subject headings--to find books similar to one with a relevant heading. (Syracuse, reference staff)

- I tell users to look at the subject headings they find on retrieved items and use those as headings (in subsequent searches). (Mankato State, library student supervisors)

- In a search for "Ludlow massacre," a MUMS keyword search yielded one book; I looked under its tracing and used the subject heading, something like "Labor disputes--Colorado--1913," and found two more books; then I led the patron to the card catalog under the subject heading where he found 20 more books. The user had to be told--this is not an obvious strategy to users. (Library of Congress, General Reading Room reference staff)

Subject headings must be included in displays of bibliographic records in response to subject searches. In the absence of a PaperChase-like feature, subject heading fields should be labeled to tell searchers to incorporate subject headings assigned to retrieved items into the ongoing search strategy as access points. Figure 19 is an example of a bibliographic record display that contains subject-rich fields of the MARC record and suggestive labels indicating subject heading fields.



```
    42 Results When Looking For Power Resources

1. Title:              The poverty of power: energy and the economic
                       crisis
   Other Subjects:     Power (Mechanics)
                       Energy policy -- United States
   Call Number:        HD 950 A2 C643 1976

2. Title:              Beyond the age of waste: a report to the Club
                       of Rome
   Other Subjects:     Economic History -- United States
                       Natural Resources
                       Energy Policy -- United States
   Call Number:        HC 59 G231 1981

   Print More?
```

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Figure 19. Example of Intermediate Display of Two Retrieved Items in an OPAC Subject Search

6.3.2.7 Conclusion

OPAC users and library staff were very interested in improved subject access to bibliographic records. This was apparent in both questionnaire responses and focus group remarks. Reasons for library patrons' difficulty in subject searching were the inability to match their input term(s) with the OPAC's controlled vocabulary, the burden of conjuring up broader or narrower terms on the OPAC user, and problems using the printed volumes of LCSH in the course of the online search.

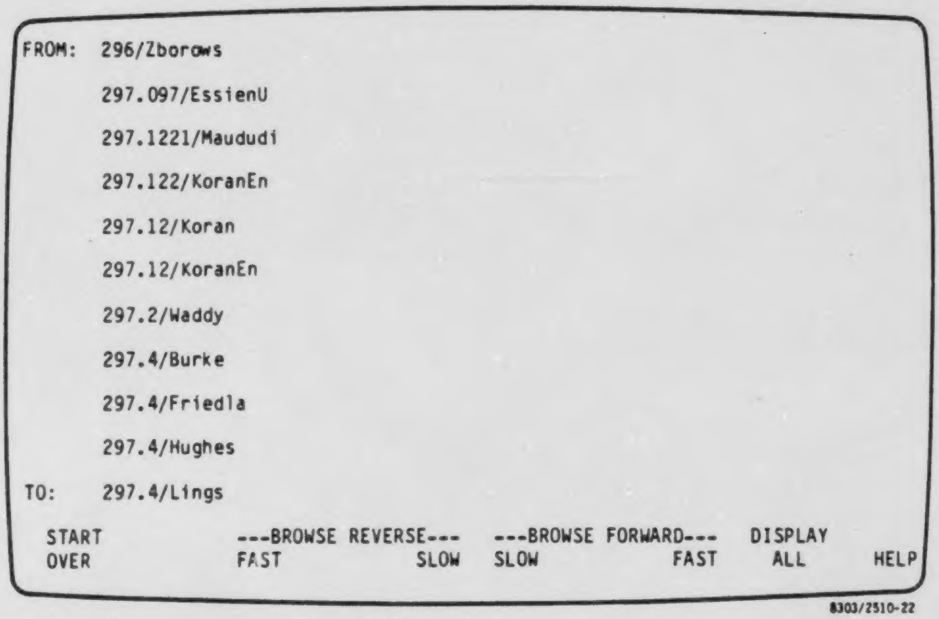
The following six online user aids were discussed and examples provided to help patrons select searching vocabulary, browse the OPAC, and make satisfactory relevance assessments about displayed items:

1. Alphabetical displays of subject headings
2. Keyword-in-context subject heading displays
3. Online displays of related subject headings
4. Augmented subject access to bibliographic records
5. Automatic linking of input free text terms to the OPAC's controlled vocabulary
6. Inclusion of subject headings in bibliographic record displays

6.3.3 Call Number or Shelflist Searching

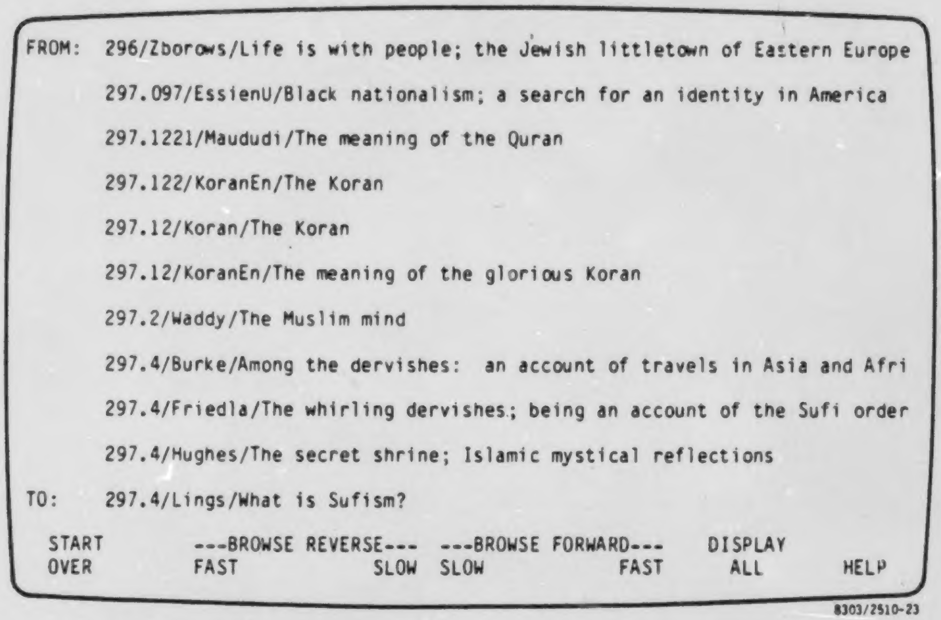
In the list of unfavorable OPAC features (see Table 53), only Iowa City Public's heavy users reported problems with the call number capability of the OPAC. Furthermore, heavy users at Iowa City Public ranked call number searches first among OPAC features with which they had unfavorable experiences. Since individual entries in the Iowa City call number display were not arranged in shelflist order, heavy users might have been using call numbers to find out a book's circulation status, rather than to perform subject searches as Ohio State OPAC users had with the SPS feature (see section 6.2.1).

Figure 20 is an example of a call number display resulting from a call number search. To find out circulation status, the user has to complete two more steps: (1) touching one of the displayed call number lines to produce brief level bibliographic record display(s); and (2) selecting one brief level bibliographic record display to produce a full bibliographic record display containing circulation status. Figure 21 is an example of a suggested display for call number searches in Iowa City Public's OPAC. The call number is now accompanied by the book title. The same information was included in Ohio State's shelf position search (SPS) displays, which patrons used for both checking circulation information and subject searching. Touching a line of the suggested Iowa City Public call number display in Figure 21 would result in a display of full bibliographic and circulation information rather than brief level bibliographic record(s). The suggested Iowa City Public call number display would also assist browsing for patrons performing subject searches and simplify the task of shelflisting for the library's technical services staff.



```
FROM:  296/Zborows

       297.097/EssienU

       297.1221/Maududi

       297.122/KoranEn

       297.12/Koran

       297.12/KoranEn

       297.2/Waddy

       297.4/Burke

       297.4/Friedla

       297.4/Hughes

TO:    297.4/Lings

  START          ---BROWSE REVERSE---   ---BROWSE FORWARD---   DISPLAY
  OVER           FAST            SLOW   SLOW            FAST     ALL       HELP
```

Figure 20. Iowa City CLSI/PAC Call Number Search Display



```
FROM:  296/Zborows/Life is with people; the Jewish littletown of Eastern Europe

       297.097/EssienU/Black nationalism; a search for an identity in America

       297.1221/Maududi/The meaning of the Quran

       297.122/KoranEn/The Koran

       297.12/Koran/The Koran

       297.12/KoranEn/The meaning of the glorious Koran

       297.2/Waddy/The Muslim mind

       297.4/Burke/Among the dervishes:  an account of travels in Asia and Afri

       297.4/Friedla/The whirling dervishes; being an account of the Sufi order

       297.4/Hughes/The secret shrine; Islamic mystical reflections

TO:    297.4/Lings/What is Sufism?

  START     ---BROWSE REVERSE---  ---BROWSE FORWARD---   DISPLAY
  OVER      FAST           SLOW   SLOW            FAST     ALL         HELP
```

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Figure 21. Suggested Iowa City OPAC Display for Call Number Searches with Titles Appended to Call Numbers

Focus group interview participants related experiences in which they browsed the bookshelf to find books on the same subjects as the one(s) they had found when searching the catalog. There were too many shelf browsing experiences to detail in total but the flavor of their remarks is present in the four examples below:

- After many tries searching the computer under very broad categories for a topic on university-industry interaction on policy towards entrepreneur research, I could have done better just to have gone to any old shelf and poked around. (Ohio State, faculty users)

- I did a search on Planning and Higher Education, found four books through my computer search, looked on the bookshelf and found more. (Syracuse, graduate users)

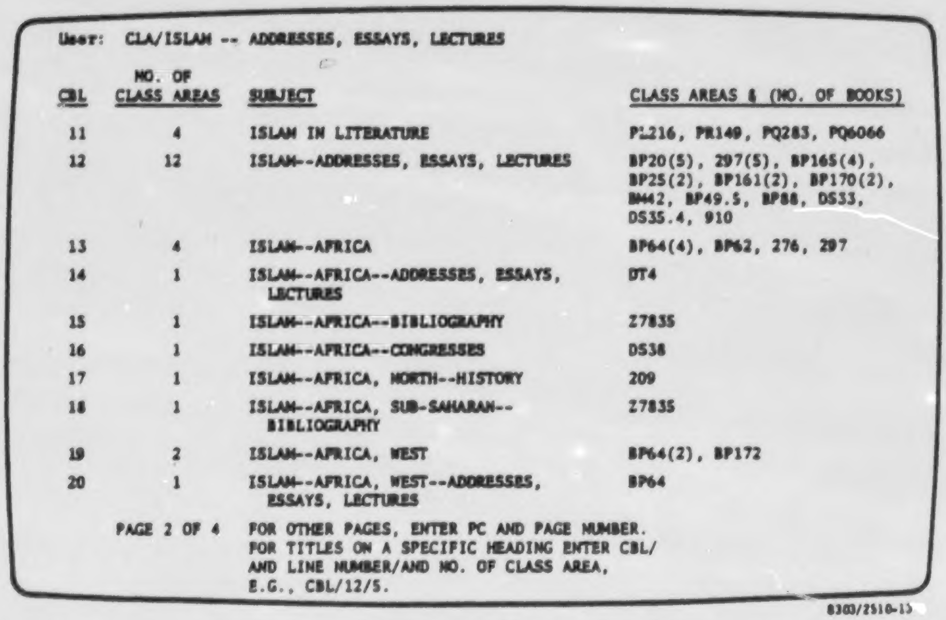
- I'd like to punch a concept into the computer and get a range of numbers, then get an image of the floor plan and what floor and where the book is. Then I'd just browse the shelves. (Mankato State, library graduate assistant users)

- Shelf number search would be like reading the shelf, or link terms (subject headings) with shelf numbers, e.g., DG = History. I'd like a handlist like that, or the reverse, e.g., History = DG. (Library of Congress, Science Reading Room users)

In section 5.6, library patrons who felt that the OPAC had not changed their search habits were chiefly performing bookshelf browsing searches. Their unchanged search habits and the experiences of OPAC users in the comments above emphasize the need for OPAC features that take advantage of the classified arrangement of books on the library's shelves.

Three online features are suggested to assist bookshelf browsers. The first is the automatic feedback routine of CITE, a prototype computer catalog of the National Library of Medicine, which locates books similar to those found by the user. The system employs subject headings, free text terms, and class numbers in its automatic feedback routine.

The second suggested feature is a means of simplifying display of retrieved citations in subject searches by reporting the class number areas and the number of items that can be found in those areas. The example in Figure 22 shows that the system's response to the user's input subject heading, "Islam -- Addresses, essays, lectures", is an alphabetical list of subject headings (plus the one entered) that enumerates class number areas and the number of books found in those areas (indicated in parentheses).



```
User:  CLA/ISLAM -- ADDRESSES, ESSAYS, LECTURES

          NO. OF
CBL   CLASS AREAS   SUBJECT                              CLASS AREAS & (NO. OF BOOKS)

 11         4       ISLAM IN LITERATURE                  PL216, PR149, PQ283, PQ6066
 12        12       ISLAM--ADDRESSES, ESSAYS, LECTURES   BP20(5), 297(5), BP165(4),
                                                         BP25(2), BP161(2), BP170(2),
                                                         BM42, BP49.5, BP88, DS33,
                                                         DS35.4, 910
 13         4       ISLAM--AFRICA                        BP64(4), BP62, 276, 297
 14         1       ISLAM--AFRICA--ADDRESSES, ESSAYS,    DT4
                      LECTURES
 15         1       ISLAM--AFRICA--BIBLIOGRAPHY          Z7835
 16         1       ISLAM--AFRICA--CONGRESSES            DS38
 17         1       ISLAM--AFRICA, NORTH--HISTORY        209
 18         1       ISLAM--AFRICA, SUB-SAHARAN--         Z7835
                      BIBLIOGRAPHY
 19         2       ISLAM--AFRICA, WEST                  BP64(2), BP172
 20         1       ISLAM--AFRICA, WEST--ADDRESSES,      BP64
                      ESSAYS, LECTURES
      PAGE 2 OF 4   FOR OTHER PAGES, ENTER PC AND PAGE NUMBER.
                    FOR TITLES ON A SPECIFIC HEADING ENTER CBL/
                    AND LINE NUMBER/AND NO. OF CLASS AREA,
                    E.G., CBL/12/5.
```

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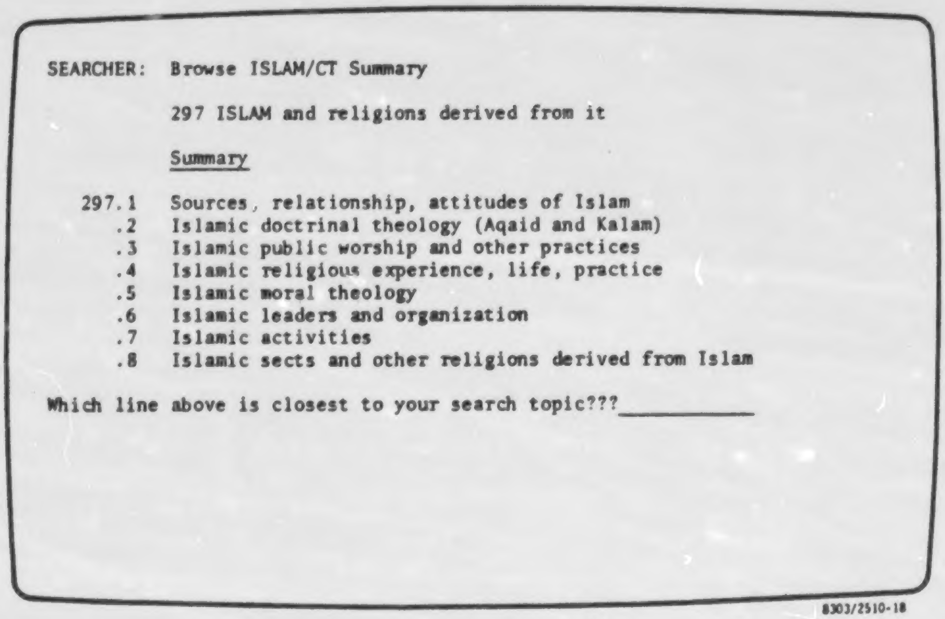
Figure 22. Suggested Online Display of the Subject Guide to the Collection of the Public Library of Columbus and Franklin County

The suggested display was constructed from the printed compilation, Subject Guide to the Collection of the Public Library of Columbus and Franklin County. Bookshelf browsers would probably consult the bookshelves where most of the books could be found rather than reviewing brief level displays of bibliographic records.

The third suggested OPAC feature involves the addition of English-language captions or headings of classification schedules to the subject indexes and display capabilities of online public access catalogs. This feature would help online searchers match their vocabulary with that of the OPAC, view classification captions or headings in context, and identify area(s) of the classification that are pertinent to the topic of interest. Displays of classification captions would help searchers find related topics. Cochrane (1982) has envisioned screen displays of the Dewey Decimal Classification to show how the classification's hierarchical structure could lead searchers to topics that are coordinate, broader, or narrower than the vocabulary used (see Figure 23).



```
SEARCHER:  Browse ISLAM/CT Summary

           297 ISLAM and religions derived from it

           Summary

   297.1   Sources, relationship, attitudes of Islam
      .2   Islamic doctrinal theology (Aqaid and Kalam)
      .3   Islamic public worship and other practices
      .4   Islamic religious experience, life, practice
      .5   Islamic moral theology
      .6   Islamic leaders and organization
      .7   Islamic activities
      .8   Islamic sects and other religions derived from Islam

Which line above is closest to your search topic???___________
```

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(Source: Cochrane, 1982b, "Figure 1. Screen Display with Classification Summary")

Figure 23. Suggested OPAC Feature for Bookshelf Browers: Dewey Decimal Classification Scheme in the OPAC

6.3.4 Reducing or Increasing Search Output

Questionnaire results concerning unfavorable features pointed out OPAC users' problems with reducing or increasing search output. Analysis of transaction logs (see Volume I of this report; Kern-Simirenko, 1983; Johnson, 1982) from many libraries and OPACs suggests that reducing or increasing search output is a widespread and prevalent problem. Participants' comments in focus group interviews demonstrated an awareness of the problem but did not describe ways to alleviate it.

- A lot of items frighten me into using the card catalog. (Syracuse, library support staff light users)

- When I get 200 titles, it's hard for me to help the patron; with 5 titles, it's not hard for me. (Ohio State, Telephone Information Center)

- The public cannot refine a highly posted search. (Syracuse, technical services staff)

The following two sections suggest OPAC features and online assistance that could help users reduce or increase the results of known-item or subject searches.

6.3.4.1 Suggestions for Reducing or Increasing Search Output in Known-item Searches

Patrons performing a search for a known item presumably want to pinpoint one item with a minimum of screen manipulations, browsing, or keystrokes. Ideally, the number of postings in response to a known-item search is one. The author/title search has been featured in an earlier discussion (see section 6.2.1) as a means of pinpointing a known item. Author/title searches resulting in more than 20 retrievals (or two screens of brief title displays) could be concluded with a message that reminds users of the limit capability (e.g., limit by year, language, format) to reduce the number of retrieved items. CITE, a prototype OPAC at the National Library of Medicine, routinely asks users whether they would like only English-language materials or materials published after a certain date. Title or author searches that result in more than 20 retrievals (or two screens of brief displays of titles) could include a comparable message about the limit command. The message should also include directions on how to enter the limit command or guide patrons through the process. When the results of title or author searches that retrieve an unmanageable number of postings, e.g., 100 titles or 5 screens, are reported to the user, the OPAC could suggest use of the author/title search to reduce the number of retrievals or actually prompt the searcher to enter additional information. The ILS at the University of Maryland prompts searchers to enter additional information when author searches exceed 20 retrievals.

Known-item searches that result in no retrievals must be particularly discouraging to OPAC users. Online public access catalogs could assist users by suggesting alternate search strategies. When a title search results in no retrievals, the OPAC could suggest that the searcher retry by entering author information and either guide the searcher through the process of entering author information or include in the suggestion an example of how to enter author information. Likewise, when an author search results in no retrievals, the OPAC could suggest the entry of title information or suggest to the searcher that the author's name might be spelled differently. Title searches or author searches that produce nothing could be automatically reprocessed by the system and individual title words or author names could be truncated to maximize the possibility of matching the OPAC's title or author indexes. Spelling correction routines on author names have already been implemented in CITE, a prototype OPAC at the National Library of Medicine, and BACS, an OPAC at the Washington University School of Medicine (Kelly et al., 1982). The University of California's name authority feature directs users to the preferred form of a single author and collocates an author's works published under various names to the preferred form (Hildreth, 1982, pp. 119-121). The author/title keyword searches of ULYSIS (at Mission College, Stephen F. Austin State University) and of Syracuse's SULIRS allow matches based on the entry of an author's name and any title word (rather than the initial substantive word in titles); such a feature might also help searchers match their author and title information with the OPAC's database indexes.

A number of recommendations have been made to help searchers reduce retrievals in known-item searches:

1. Following a highly posted author or title search, the system either:
   a. suggests that the searcher retry the search using the author/title search, or
   b. automatically prompts the searcher to enter additional author information (in the case of a title search) or title information (in the case of an author search).

2. Following a highly posted author, title, or author/title search, the system either:
   a. suggests that the searcher limit the results by date of publication, English-language materials, format, or another criterion, or
   b. automatically prompts the searcher to limit the results by given criteria.

Seven recommendations regarding assistance to OPAC users whose known-item searches result in no retrievals are given below:

1. When a title search results in no retrievals, the system either:
   a. suggests that the searcher retry by entering author information, or
   b. guides the searcher through the process of entering author information.

2. When an author search results in no retrievals, the system either:
   a. suggests that the searcher retry by entering title information, or
   b. guides the searcher through the process of entering title information.

3. When an author/title search results in no retrievals, the system suggests that the searcher retry by entering only title or author information.

4. Author/title searches could be made less stringent by allowing matches on any substantive title word(s).

5. Automatic truncation of title word(s) in title searches or of author name(s) in author searches.

6. Spelling correction routines performed on input author names or title word(s).

7. Capability for name authority control to direct users to the preferred form of an author's name following entry of alternate names for the particular author.

6.3.4.2 Suggestions for Reducing or Increasing Search Output in Subject Searches

The analysis of transaction logs revealed that many OPAC subject searches resulted in a large volume of retrievals (see Volume I). The use of OPAC features associated with reducing the number of retrievals, e.g., Boolean operators, limit criteria, etc., was minimal. Since such features were available to searchers in the systems studied, the nonuse of such features suggests that searchers must be prodded into using them. A suggestive prompt following the report of a large number of retrievals would inform searchers of the means available for reducing the search output and how to enter the commands and pertinent data. For example, a suggestive prompt following a highly posted subject search would ask the user to enter a word or phrase that would make the search more specific; then the system would automatically and implicitly combine the word or phrase into a Boolean "AND" operation.

Structuring LCSH into online lists of related words and phrases would give OPAC users a means to browse subject vocabulary and select more specific terms and phrases to represent their topics of interest. OPAC users whose subject searches result in few or no retrievals could also be assisted by browsing such related word lists in order to select more general terms or phrases. The availability of cross-references in the OPAC could also be a means of increasing the likelihood that users' entry vocabulary would match the controlled vocabulary of the OPAC. Automatic truncation of users' subject term(s) might result in a match of users' vocabulary and the OPAC's subject indexes. Vocabulary aids for subject searching (see section 6.3.1), such as augmented MARC records or automatic links between free text terms and controlled vocabulary, might also assist users in subject searches that result in few or no retrievals.

The output of highly posted subject searches could be simplified by reporting the class number areas under the subject heading input by the OPAC user, along with the number of items in each area. The example in Figure 22 was discussed earlier as a means of simplifying the output of subject searches for bookshelf browsers. This example could also help subject searchers in highly posted searches. In the example, the system's response to the user's input subject heading ("Islam--Addresses, essays, lectures") is an alphabetical list of subject headings (plus the one entered) that enumerates class number areas and the number of books found in these areas (indicated by parentheses) under that subject heading. OPAC users would most likely record the class number area(s) with the greatest number of books under the subject heading of interest and browse the bookshelves in the class number areas recorded.

Recommendations to help searchers reduce the output of highly posted subject searches follow:

1. Suggestive prompts following the report of retrievals that tell users how to reduce the number of retrievals and how to enter the information. Means of reducing the number of retrievals are:

a. Boolean operators,
b. limit commands and criteria, or
c. list of subject subdivisions appended to the main subject heading, that the searcher has matched.

2. Display of related word lists compiled from LCSH to help users find terms or phases more specific to the one entered, or to find additional terms or phrases to enter into the ongoing search strategy through an implicit Boolean "AND" operation.

3. Online subject heading displays enumerating the class number areas in which books are classified under the subject heading of interest and the number of books found in each area.

Recommendations for assisting OPAC users whose subject searches result in few or no retrievals are:

1. Availability of cross-references online.

2. Availability of related word list displays to direct users to more general terminology.

3. Automatic truncation of users' input subject terms.

4. Augmented subject access to bibliographic records.

5. Automatic linking of input free text terms to the OPAC's controlled vocabulary.

6.3.5 Output Control Features

In particular, OCLC users reported unfavorable experiences regarding abbreviations on bibliographic record displays. Most likely, OCLC users had difficulty understanding both the fixed field labels that preceded the descriptive information on bibliographic records (see Figure 2) and the meaning of holdings symbols. In the brochures, manuals, and guides near OCLC public access terminals, attention should be given to explanation of fixed fields in general, plus a few fixed field elements that might be important to the user's purpose or search topic, e.g., date, language, format. A list of holdings symbols should also be placed near OCLC terminals.

OPAC users at all five sites had difficulty entering commands during the ongoing search. This result was very surprising at Iowa City Public, where users reported that remembering commands in the middle of a search was easy and the sequence of commands was easy to remember (see Table 50). The reason for users' difficulty entering commands might have been that users had to enter commands to perform operations instead of the simple physical actions required in card catalog searching. For example, displaying full bibliographic records in a card catalog search is accomplished by the physical actions of flipping cards and reading all the information on a card. Displaying full bibliographic records in an OPAC search is accomplished by the correct entry of a command name or abbreviation and, sometimes, the number of the record to be displayed (e.g., D, DI LONG, nb, etc.). Thus, OPAC users must "logicalize" the steps of a seemingly simple task (e.g., finding out whether there is a copy of the novel Roots on the shelf in this library building) into a series of commands understandable to the online public access catalog. At all times, OPAC users must be aware of three aspects regarding the entry of commands: (1) the command name or abbreviation; (2) how to enter the command; (3) information about the display other than the command name or abbreviation (e.g., field label, next record number to be displayed, etc.); and (4) when commands can be entered in the process of the online search.

A number of factors should be taken into consideration in the design of output control features of the OPAC to make the online control of output easy to the searcher:

1. Mnemonic command names or abbreviations.

2. Command names or abbreviations that are easily understandable in view of the operation they perform.

3. Command entry procedures that are easy to remember.

4. Command entry procedures that are consistent from one command to the next.

5. Suggestive or directive prompts that inform the user about or guide the user through possible actions and how to carry out the actions.

Table 53 lists four of the five systems studied where users experienced slow response time. Problems regarding response time were specific to the individual system. For example, library staff reported that rainy days in Dallas resulted in a slower response time than dry days. Iowa City Public's OPAC responded quite quickly except when the system was retrieving a full bibliographic record. Comments in focus group interviews indicated that users of these systems were not angered by slow response time and sometimes found ways to beat anticipated slow responses.

- It (the computer) is a little slow, but I guess you can understand that. It's only a computer. (Dallas Public, middle school users)

- By 4-5 p.m., the Boolean search with FIND command is slowest--it could take 45 minutes, which both ties up and locks the terminal from anyone else's use. If I am in a reading room where there aren't many people using terminals, I can keep my eye on the terminal. Sometimes I will not use the Boolean AND at all, and choose to look through a large number of postings and select the good ones myself. (Library of Congress, General Reading Room users)

Responses to survey questions associated with output control provided insight into users' favorable or unfavorable experiences with some output control features or aspects of the display of search output.

Comments from focus group interview participants about output control were sometimes directed to problem(s) regarding a specific online public access catalog; such interview comments would only be understandable to readers familiar with the operation of the specific OPAC. However, such comments specific to one OPAC have implications to OPACs in general, in the form of needed OPAC output control features and guidelines for bibliographic record displays.

Based on the analysis of focus group interview remarks, the following output control features and guidelines for output control features are recommended in the implementation of OPACs:

1. Display forward (of bibliographic records or screens of bibliographic records).
2. Display backward (of bibliographic records or screens of bibliographic records).
3. Report of the number of retrieved citations or screens of titles which result from the input of an access point.
4. Report of the number of screens required to display a full bibliographic record and/or circulation information in the first screen of the record which:
    a. includes a very visible and understandable directive prompt at the end of the display to guide users to successive screen displays of the record, or
    b. in the case of multiple, i.e., 5 or more, screens for a displayed record, includes an informative and understandable directory to the contents of multiple screens.
5. Use of messages regarding circulation status that the library can live up to. If a displayed message says that a book is "on shelf," the library must live up to the message and be ready to provide the necessary support for ferreting out "on shelf" books that cannot be found.
6. Display of output ordered by a characteristic that is easily and quickly understood by OPAC users, e.g., date of publication, alphabetical title list, etc.
7. Inclusion of subject headings in brief or intermediate level displays of bibliographic records that are retrieved as a result of subject searches.

6.3.6 Operational and Search Formulation Control Features

Survey respondents reported unfavorable experiences regarding the interruption or stoppage of the display of information. The reason for such difficulty could be linked to poor response time (i.e., users wanted to rescind a command when the system took a long time to respond) or to the entry of an incorrect command, which the user realized was incorrect after entering it. With regard to the former, a "break" or "interrupt" key is needed to stop the ongoing processing and to return to the point of the command input prior to the one that resulted in slow response time. With regard to the former and the latter, a "report" key is needed to inform the searcher of the system's progress and results obtained up to that point. The searcher can then decide whether the action taken was correct or fruitful. The "report" key would allow users to: (1) let the system continue processing the command; or (2) break the processing and return the user to the results obtained before pressing the "report" key.

OPAC users and nonusers reported in focus group interviews that the traditional library catalog surpassed the online public access catalog in terms of the speed and ease with which bibliographic records were displayed. In the former, searchers only had to flip a card to view the next record; in the latter, searchers expressed dismay about the entry of complex commands when they just wanted to see the next record and about the time-consuming delays that occurred when remembering what command to enter next or when waiting for the computer to process and respond to the command. To assist patrons in the display of retrieval citations, OPACs should have simple command entry procedures for displaying the "next" bibliographic record, especially when the "next" bibliographic record is in the same format as the previous one.

Searching with truncation was considered difficult by OPAC users. Most likely, users did not understand when to use explicit truncation, i.e., when they expected few retrievals, when they did not know the "legal" subject heading, etc. Section 6.3.4 suggests that truncation be automatically performed by the computer catalog to increase the search results obtained in low-retrieval subject or known-item searches.

At Dallas Public, OPAC users voiced frustration about understanding how to express their search topic as a derived search key. Comments from reference staff and search intermediaries described users' lack of understanding of derived search keys:

- People don't understand that they type in only part of their words or names. (Volunteer trainers)
- Patrons don't understand the search key approach. They just want to write out the whole term or phrase. (Reference staff)

Users at other libraries whose computer catalogs required derived search keys had difficulty remembering the number of characters and words constituting search keys. Users' problems concerning the entry of characters and words in systems requiring the derived search key approach suggests that systems allow the entry of terms and names in natural language, i.e., the entry of whole words and names, and automatically perform the truncation necessary to create the derived key.

6.3.7 Offline User Assistance

At all five systems surveyed, users reported difficulty knowing what was included in the computer catalog. Even at Iowa City Public where all the library's holdings were accessible through the OPAC and where there was no card catalog, users reported such difficulty. Focus group participants at nearly every library expressed surprise when they found out that their library's computer catalog did not contain the entire contents of Reader's Guide, especially patrons at libraries where "all the library's holdings" were in the computer catalog. Library patrons probably took literally the statement that all the library's holdings were in the computer catalog, meaning all the library holding's were in the computer, i.e., contents of periodical indexes, texts of books, titles of songs on individual bands of sound recordings, newspaper stories, etc.

Many methods are available to library staff for informing patrons about the coverage and contents of the online public access catalog:

1. Workshops, group or individualized instruction, and training materials used in workshops or instruction sessions must include a discussion of the coverage and contents of the library's OPAC.
2. Permanent printed guides or brochures about OPAC use to which searchers can refer when performing online searches at the OPAC, laminated and/or pasted to the terminal or terminal table, posted on walls, etc.
3. Free printed guides or brochures about OPAC use that are available for the taking.
4. Permanent signs posted near the library's traditional catalog must refer patrons to the OPAC to ensure that the results of their searches are up-to-date and comprehensive. A sign could simply say, "Check the computer catalog for books, government documents, magazines, and newspapers published after 1968."
5. An online message at the end of OPAC searches could inform users that there are other resources to check; for example, an online message might say, "Check the card catalog for books, government documents, magazines, and newspapers published before 1968."

At many survey sites, OPAC users noted that signs and brochures were not always available. Most likely, users were interested in signs and brochures about OPAC use that were available for the taking. Some institutions have evolved a general philosophy about instruction of library patrons and feel that patrons should be able to interact with the OPAC without reference to brochures or information sheets. Focus groups revealed sets of patrons who refused to obtain the assistance of the librarian; wanted to teach themselves how to use devices on their own time and at their own convenience; or felt embarrassed and self-conscious about referring to a brochure or manual during their online search when there were other library patrons around (especially patrons waiting behind them to use the OPAC).

The following focus group comments are evidence of library patrons who do not or are reluctant to consult the librarian:

- A lot of people are reluctant to ask the librarian because they feel the librarian is too busy. (Dallas Public, volunteer trainers)
- I want to learn how to use the computer without a librarian's help. (Syracuse, graduate light users)

- I want a poster or brochure. I do not want to attend a class, especially with other people (to learn how to use the OPAC). (Syracuse, undergraduate users)
- I'm embarrassed when I ask the librarian a question that's so obvious to him. (Ohio State, graduate nonusers)
- I asked the librarian to explain the computer to me. I felt sort of dumb, so I didn't ask again. (Iowa City Public, older adult light users)

Library patrons would benefit from the availability of pamphlets, brochures, or instruction sheets that they could take with them and study at their own convenience. To reach all library patrons about OPAC use, libraries must make available a variety of online and offline aids to accommodate a variety of patrons' personal styles and preferences.

Only Ohio State fared well in users' estimates of the availability of computer catalog terminals. Users' difficulty finding free OCLC terminals must be their way of saying, "There aren't any OCLC terminals around when I need to use one," since there are only one or two OCLC terminals available for public access at most libraries offering such a service.

When free terminals were difficult to find, library users usually queued behind OPAC searchers who were using the terminals. This created problems for searchers using the terminal, e.g., some felt hurried, or embarrassed about their lack of skill, or self-conscious regarding their search topic. Below are listed comments from OPAC users:

- Some kids are sensitive about their topics, e.g., teenager working on a topic like homosexuality or prostitution. (Dallas Public, reference staff)
- I feel nervous if some people are looking at what I'm searching. (Iowa City Public, older adult light users)
- I get embarrassed when people watch me search, especially if I press the wrong line. I don't like them looking to see what I'm looking for. (Iowa City Public, 6th grade school users)
- If you have trouble with the alphabet you feel embarrassed. Of course the person behind you is a 13-year old whiz at this. But you're absent-minded and helpless. (Iowa City Public, adult users)

Perhaps the "express line" concept used at banks, airline and train reservation centers should be instituted when the library notices queues forming behind OPAC terminals. In this way, waiting patrons would stand in a single line for the next available terminal and remain segregated from patrons who are using computer catalog terminals.

OPAC users were questioned specifically about service improvements. Table 55 summarizes the top four service improvements overall and at the individual libraries surveyed. Except for respondents at Ohio State, respondents at the libraries surveyed ranked "more terminals" first among improvements.

Table 55. CLR-Aggregate and Individual Libraries:
Four Top-Ranked Service Improvements

User question 45. Select up to four computer catalog service improvements you would like the library to make.	Libraries and Ranks*					
	CLR-Aggregate	Syracuse	Ohio State	OCLC System	Dallas Public	Iowa City Public
More terminals	1	1	4	1	1	1
Terminals at places other than library buildings	2	2	1	2		2
Terminals at locations other than near the card catalog	3	3	3	4	4	4.5
Chart of commands posted near the terminal	4	4	2	3	2	3
Manual or brochure at the terminal					3	4.5
N(responses) =	15,657	2,865	1,182	784	2,385	658

*In rank order; 1 = most frequent response

OPAC users were also keen about placing computer catalog terminals at locations other than near the card catalog or in library buildings. Focus group interview respondents identified where they would like access to the computer catalog. Possible locations are listed below:

- Home (Syracuse, faculty users, department reference staff; Mankato State, graduate light users, faculty users, reference staff; Iowa City Public, 6th grade school users, junior high users, high school light users, university library school users, adult users, reference staff, technical services staff; Dallas Public, volunteer trainers, reference staff)
- University offices or classroom buildings (Mankato State, undergraduate new users, library graduate assistant users, faculty

light users, public service and media education faculty; Syracuse, department reference staff; Ohio State, faculty nonusers, faculty users)

- Dormitories (Mankato State, graduate light users; Syracuse, undergraduate users)
- Supermarket (Iowa City Public, reference staff)
- Telephone booth (Iowa City Public, adult users; Dallas Public, reference staff)
- "Everywhere--like drive-in beverage stores." (Dallas Public, middle school users)

6.3.8 OPAC Workstation Design Considerations

Survey participants responded to statements about the environment around computer catalog terminals, i.e., lighting, noise, terminal table height, amount of writing space, and about the computer catalog terminal, i.e., keyboard, screen glare, printer and screen characters. The percentages of users of the Dallas Public OPAC and the OCLC system who reported confusion about the terminal's keyboard were somewhat large (18% and 20% respectively) in comparison to other OPAC users; only 5% of Syracuse users reported confusion about the keyboard. OCLC users might have been referring to the many keys on the OCLC keyboard, especially in view of the relatively few keys needed to input OCLC derived search keys. Dallas Public patrons who expressed confusion about the OPAC's keyboard could have been using the two types of terminals provided by the library and experiencing problems switching from one type of terminal to the next. Focus group interview participants at the Library of Congress pointed out the many types of terminals used there. Both Library of Congress and Dallas Public patrons and reference staff noted problems related to providing two or more types of terminals.

- Skyline Branch's terminals are different from here (Casa View Branch), and I do the same things I do here, but the computer doesn't act the same, so I ask someone else to do the search. (Dallas Public, middle school users)
- We have two different types of terminals. Patrons get confused going from branch to branch. (Dallas Public, reference staff)
- I never learned how to use the Hazeltine terminal in my department. Why should I when it will be replaced in two months with a new and different one? (Library of Congress, Special Collections staff users)
- When computerization requires the library to standardize, why should all the terminals be different? Automation is sold as making your life easier, better and simpler, and yet, the day-to-day experience may be this way or very different. (Library of Congress, processing staff light users)

Few surveyed library patrons noted that there was sufficient writing space at the computer terminal. The percentage of users who responded negatively about the sufficiency of writing space ranged from 23% at Syracuse University to 61% at the University of Texas at Austin. All libraries who participated in the study should consider providing more space at computer catalog workstations.

Patrons at surveyed libraries were also not satisfied by the height of the tables upon which OPAC terminals were placed. The percentage of users who responded negatively about the suitability of the terminal table's height ranged from 77% at University of Texas at Austin to 97% at the University of Texas at Dallas. Given the many focus group participants who wanted chairs provided in front of computer catalog terminals, most likely survey respondents did not like standing at terminals and would have preferred chairs.

The survey questioned respondents about problems with hardcopy printers. Since so few respondents had access to printers, the survey results were inconclusive. However, focus group participants at all six library sites wanted hardcopy printers at OPAC terminals. Printers were listed fourth among the top-ranked additional OPAC features (see Table 54). Participants who had access to printers at some terminals wanted printers at more terminals. Mankato State students and faculty were able to obtain hardcopy printouts of retrieved citations on a next-day service basis. Not surprisingly, Mankato OPAC users wanted same-day or immediate service. Library staff at the Library of Congress noted the value of hardcopy printouts when responding to mail reference requests. Below are listed the libraries and groups that expressed interest in obtaining hardcopy printouts of retrieved citations and in services related to document delivery:

- Hardcopy printouts (Syracuse, undergraduate users, graduate light users, graduate users, faculty users, technical services staff, department reference staff, reference staff; Iowa City Public, high school light users, 6th grade school users, high school computer class users, adult users; Dallas Public, reference staff)
- Same-day service for obtaining hardcopy printouts. (Mankato State, undergraduate users, library graduate assistant users, faculty users, library student supervisors)
- Placement of automatic holds on library materials. (Syracuse, undergraduate users, graduate users, department reference staff; Dallas Public, middle school users)

Somewhat related to users' interest in obtaining hardcopy printouts was their demand for greater precision in the location of retrieved items. The ability to know if a book was checked out was listed third among requested additional OPAC features (see Table 54). OCLC users and users of the Dallas Public OPAC ranked this feature first. Circulation information has already been included in the OPACs of Syracuse, Ohio State, and Iowa City Public.

Focus group participants at Ohio State, Iowa City Public, and Dallas Public wanted the computer catalog to identify the floor of the library on which a book could be found. Focus group participants at nearly all six sites were interested in the delivery of the actual library materials by the computer itself. Also, the way in which they expressed such delivery was interesting:

- Delivery of books, especially in winter. (Mankato State, undergraduate users)
- I want to order books and have them delivered at home; would save me gas. (Dallas Public, Martin Luther King Branch users)
- I want to walk to a type of telephone book, punch in my topic, and the machine gives me the actual book or whatever it is. (Iowa City Public, adult users)
- I could use the computer anywhere in town, and it would deliver a book to my home. (Iowa City Public, 6th grade school users)
- The computer will have a vacuum like the bank and deliver the book to you. (Dallas Public, middle school users)

Focus group participants who were most concerned about comfort at computer catalog workstations were technical services and processing staff whose jobs required many hours of continuous work at a computer terminal. Their concerns were chiefly about physical discomforts, e.g., eye problems, use of bifocals, backaches, etc. Library administrators who anticipate that their library staff will be spending many hours of steady work at a computer terminal should make improvements in staff's physical working environment to ensure that their working conditions are safe and comfortable.

6.4 ENRICHING THE OPAC'S DATABASE

The OPAC has been viewed as the new physical residence of the contents of the traditional library catalog whose chief content is bibliographic information about the library's monograph collection. In the questionnaire, OPAC users were asked what additional materials they would like entered into the online public access catalog. Table 56 lists the five top-ranked library materials that users would like added to the OPAC.

Table 56. Five Top-Ranked Types of Materials to Be Added to OPACs

User question 46. Select up to four kinds of materials you would like to see added to the computer catalog	Ranks* and Libraries				
	Syracuse	Ohio State	OCLC System	Dallas Public	Iowa City Public
Journal or magazine titles	1	1	1	1	1
Government publications	3	2	3	4	5
Dissertations	5	3	2		
More of the library's older books	2	5	4		
Newspapers	4	4	5	5	4
Motion picture films				2	2
Phonograph records or tapes				3	3
N(responses) =	3429	2794	856	2310	756

*In rank order; 1 = most frequent response

Focus group interviews revealed that the overall top-ranked type of library material, journal titles, referred to the titles of journal articles in individual journal issues. OPAC users' interests in additional materials probably also extended to individual newspaper articles and bands on phonograph records and tapes rather than just titles of newspapers or titles of phonograph records and tapes. Some surveyed libraries already had all their holdings of one or more of these five top-ranked library materials entered into the computer catalog. For example, Iowa City Public had bibliographic records of all of its holdings in the OPAC at the time of the survey. Users' responses might have referred to their interest in the type(s) of materials they wanted the library to acquire in the future.

In focus group interviews, OPAC users, nonusers, and library staff identified periodical indexes and other reference works that they would like to access through the OPAC. The reference works that were identified are listed below followed by the group that mentioned the work.

Reader's Guide to Periodical Literature, (Syracuse, undergraduate users; Mankato State, undergraduate users, faculty users, reference staff; Ohio State, undergraduate users, graduate users, Telephone Information Center; Dallas Public, middle school users, volunteer trainers, reference staff; Iowa City Public, junior high school users; Library of Congress, legislative intern nonusers)

General Literature Index, (Library of Congress, General Reading Room users; Dallas Public, reference staff)

Periodical articles in general, (Mankato State, undergraduate new users, graduate users, library graduate assistant users, faculty light users; Dallas Public, volunteer trainers, reference staff; Syracuse, undergraduate users, graduate users, faculty users; Ohio State, undergraduate users, undergraduate nonusers, graduate users, faculty users, Telephone Information Center; Iowa City Public, high school light users, adult users; Library of Congress, Science Reading Room users, General Reading Room reference staff)

Newspaper articles in general, (Mankato State, undergraduate new users; Syracuse, graduate users; Ohio State, undergraduate nonusers)

Named science reference works: Chemical Abstracts, (Ohio State, graduate users, faculty nonusers); Engineering Index, (Library of Congress, Science Reading Room users; Index Medicus, (Ohio State, faculty nonusers); Bibliography of North American Geology, (Ohio State, faculty users)

Named humanities and social science reference works: Sociological Abstracts, (Mankato State, faculty users); ERIC, (Mankato State, Public service and media education faculty); Psychological Abstracts, (Mankato State, undergraduate users); Magazine Index, (Mankato State, reference staff); PMLA, (Ohio State, graduate users): Humanities Index, (Ohio State, graduate users); Index to Religious Periodical Literature, (Library of Congress, light users); Keesing's Archives, (Syracuse, undergraduate users)

Patrons and library staff mentioned interest in an OPAC service analogous to the Institute for Scientific Information's Current Contents in which the OPAC would allow users to scan the titles of articles in recently published journals. Another suggestion from OPAC users was the ability to enter a topic into the computer catalog and be directed to the appropriate sources in the library's reference collection. Mischo (1980) demonstrated the use of a rotation algorithm to provide enhanced subject access to the Iowa State University Library's reference collection. The result of Mischo's work was a computer-produced hardcopy keyword index, which could be easily envisioned as existing in the online environment of the computer catalog to direct library patrons to fruitful reference sources.

The OPAC could be used to lead users to pertinent reference works based on an analysis (similar to Horowitz and Bleich's PaperChase) of frequently occurring periodical indexes listed in the 510 field of CONSER records when there are a number of CONSER records contained in a highly posted OPAC search set. This feature would identify pertinent periodical indexes to searchers, e.g., Reader's Guide, ERIC, whose contents are not yet searchable in OPACs. Such a feature would be useful for highly posted searches in which searchers want to reduce search results and be directed to sources more specific than the library's catalog. Figure 24 is an example of how such a feature would work in the online environment of the OPAC.

```
USER:  Islam

          1     507 Items for Islam

          SELECT ONE:

          A  Type in short format
          B  Type in long format
          C  Enter more search terms
          D  Browse subjects
          E  Browse bookshelf areas
          F  Find reference indexes on this subject
          G  End search

USER:  F

          6 of 507 Items are Journals - most covered by 3 indexes:

1. Call No.: Z7835.M6L62
   Location: 5th floor, main library
   Title:    Quarterly Index Islamicus
   Subjects: Islam--Bibliography--Periodicals
             Civilization, Islamic--Bibliography--Periodicals
             Africa, East--Bibliography--Periodicals

2. Call No:  Z299.H67
   Location: 1st floor, reference, main library
   Title:    Historical Abstracts
   Subjects: History--Periodicals--Indexes
             History--Periodicals--Abstracts

3. Call No.: BL48.R34
   Location: 3rd floor, main library
   Title:    Religion Index One:  Periodicals
   Subjects: Religion--Periodicals--Indexes
             Theology--Periodicals--Indexes

          SELECT ONE:

          A  Type in long format
          B  Enter more search terms
          C  End search                                    8303/2510-27
```

Figure 24. Access to Periodical Indexes Through the OPAC

Focus group interviews brought to light the need for access to the library's reference collection through the computer catalog. Reference staff cited instances when patrons were having trouble using the OPAC because they were trying to answer what staff would consider a reference question or looking for library material on a topic that would be better addressed to a periodical index or bibliography.

Users of OPACs at public libraries were interested in finding out community information from the OPAC; users of OPACs at academic libraries felt that campus information would be pertinent to the OPAC's contents. Below are listed their suggestions about community and campus information.

> Community information: Job ads, current city events, public concerts, local continuing education courses, university courses, subway routes, city maps, employment service, movies, plays, restaurant reviews, doctors' specialities, government and social agencies, city directories, information about local associations and service groups, dates of festivals, genealogical information.
>
> Campus information: Library hours, library displays and exhibits, campus phone numbers, local restaurants, upcoming television shows, university research in progress and investigator names, current local plays, public concerts, campus events, academic calendar.

Focus group participants at the Library of Congress, Dallas Public, and Mankato State were interested in locating available books not owned by the library whose OPAC they regularly searched. First, they were concerned about searching the holdings of nearby libraries, e.g., in the Washington area, Martin Luther King Public, Georgetown, George Washington, or Howard University, etc., then searching distant libraries. Underlying patrons' interest in searching other libraries' holdings was obtaining the book from a nearby library by personally visiting the library or obtaining the book from a distant library via interlibrary loan.

Patrons' ideas about enhancing the contents of the online public access catalog were virtually limitless and very imaginative. Below are some of their more imaginative ideas:

- Whole sets of encyclopedias and almanacs.
- I'd like to search the knowledge of the world. You first read what is here at the library; graduate students could also get what is available through the state's interlibrary loan network; but faculty would access everything in the world.
- How to fill in a job application.
- Computer could tell about taking different drugs, describe them, what shapes they are, how many to take, harmful effects, etc.
- What kind of career I should take up.
- All the library's resources by type of material--books, pamphlet file, records, tapes, vertical file, community resource people--the OPAC should be a resource center, not a card catalog!

6.5 SUMMARY OF FINDINGS

System-by-system checklists of command capabilities were presented for the five systems studied by OCLC's administration of the user questionnaire. When checklists of command capabilities were matched with the user questionnaire, it was demonstrated that: (1) there were features enumerated in the checklists that none of the systems in the study offered; (2) there were features in the systems studied that were not evaluated because the questionnaire did not contain questions about those features; (3) there was not a one-to-one correspondence between survey questions and OPAC features enumerated in checklists; and (4) survey questions about users' experiences with features were closed-ended. Consequently, there were OPAC features that were not evaluated in the present study. The interpretation of users' responses to survey questions was difficult because of overlap among questions and features. Because the nature of users' favorable or unfavorable experiences with OPAC features was difficult to determine from closed-ended questionnaire results, information from focus group interviews was used to find out the nature of users' problems.

Favorable experiences with search formulation features were reported by OPAC users in connection with access points for known-item searching, viz. author/title, title, author access points. The entry and amount of known-item information differed widely from system to system; however, subject access points were not listed among features with which users had favorable experiences, even though entry techniques were similar to known-item entry techniques. Thus, OPAC users' favorable experiences about known-item access points might be attributed to the concreteness of the task of finding known-items in comparison to the increased amount of mental effort involved in the task of subject searching.

Bibliographic and circulation record displays of the five systems studied were featured in a discussion of the ease of understanding single bibliographic record displays. Individual lines of text in single record displays of the four systems with which users noted favorable experiences were prefaced by alphabetic and/or numeric labels. Circulation and bibliographic record displays were the chief locations of abbreviations, codes, undefined messages, jargon, etc. Focus group participants noted difficulty understanding record displays with such information.

It was surprising that OCLC users reported favorable experiences with single record displays even though they contained MARC tags and numeric indicators. Since over 40% of OCLC users had consulted the librarian in their most recent search, users' favorable experiences with single record displays could be attributed to the librarian's assistance. Syracuse's multiple record displays were cited by users as being particularly understandable. The ease with which these displays were produced and the message concluding each display, which told users how to continue producing such displays, probably affected users' attitudes toward the multiple display feature.

Recommendations regarding the placement of call numbers in bibliographic record displays are: (1) placement along the outer edge of text; (2) far from the neighborhood of other numbers and characters that could be confused with call numbers; (3) labeling call numbers with a term understandable to patrons; and (4) explanations for and examples of circulation and bibliographic record displays in offline and online user aids.

Iowa City Public's was the only system whose users reported ease in understanding the order of displayed items; patrons were most likely referring to the alphabetic arrangement of touch screen displays. Also, Iowa City Public's horizontal array of touch commands might have helped library patrons remember the correct sequence of inputting commands or to remember the correct command to input in the course of their searches. Yet, Iowa City Public's patrons mentioned the need for more directive means of informing them of the next and best step in the ongoing search.

Syracuse University and Iowa City Public OPAC survey respondents cited each system's online user assistance. Help screens were available at all times in the Iowa City Public OPAC, but staff realized that users were embarrassed to be seen using them. The library's experience with changing the initial instructions after finding out patrons' reactions demonstrated the necessity for allowing individual libraries to alter screen displays, help messages, command names, field names, etc., after the implementation of the computer catalog.

OPAC users were very favorable toward librarian assistance. OCLC users and OPAC users at Ohio State noted the helpfulness of brochures about OPAC use, and Ohio State users noted that brochures were always available. Ohio State was the only library surveyed where there were always free terminals available for use.

Analysis of focus group remarks and questionnaire responses showed that OPAC users experienced difficulty when performing subject searches. Reasons underlying this difficulty were: (1) patrons' inability to match their input term(s) with the OPAC's controlled vocabulary; (2) the burden of conjuring up broader or narrrower terms on the OPAC user; and (3) problems consulting the printed volumes of LCSH during the online search.

Six online user aids were discussed and examples provided which were intended to help patrons select searching vocabulary, browse the OPAC, and make satisfactory relevance assessments about displayed items. The six online user aids were:

1. Alphabetical displays of subject headings.
2. Keyword-in-context subject heading displays.
3. Online displays of related subject headings.
4. Augmented subject access to bibliographic records.
5. Automatic linking of input free text terms to the OPAC's controlled vocabulary.
6. Inclusion of subject headings in bibliographic record displays.

OPAC users had unfavorable experiences with the call number or shelflist displays in the Iowa City Public OPAC. Since such displays were probably used to find out if library materials were available in the library, the call number search could be simplified to reduce the number of steps (or touch commands) that are necessary to check library materials' circulation status. Ohio State users reported favorable experiences with shelflist searches and displays. Since bibliographic records entered into the Ohio State OPAC prior to June 1978 lacked subject headings, searchers used the shelf position search to improve the recall of OPAC subject searches by using the results of a subject heading search to identify a fruitful call number area. The shelf position search also allowed searchers to "browse the stacks" by perusing titles of books in the area of the input call number. Focus group interview participants recognized the usefulness of browsing books in the neighborhood of a relevant book.

Three suggestions are given to take advantage of the classification's ability to group together books about the same subject:

1. Automatic feedback routine similar to the one used in the CITE OPAC, which uses class number areas of relevant and retrieved items to find additional items.
2. Online subject guide that reports the class number areas in which books are classified, as well as the number of books found in each class number area under the subject heading of interest.
3. Display of classification captions enumerated in classification schedules to help searchers find books on specific, coordinate, or general subjects.

The following recommendations are made to help searchers reduce the number of postings in highly posted known-item searches:

1. Suggestive prompts or directive prompts to inform the searcher to retry the search using the author/title approach.
2. Suggestive prompts or directive prompts to inform the searchers to limit results by various criteria.

The following are recommendations regarding assistance to OPAC searchers whose known-item searches result in no retrievals:

1. If the author approach or the title approach results in no retrievals, the system produces suggestive or directive prompts informing the user to retry the search using the title approach or the author approach, respectively.
2. When an author/title search results in no retrievals, the system suggests or directs the user to enter only title or only author information.
3. Author/title keyword searches.

4. Automatic truncation of title word(s) and/or author names(s).
5. Spelling correction routines.
6. Name authority control capability.

Recommendations were given to help searchers reduce the output of highly posted subject searches:

1. Suggestive prompts informing users that results can be reduced by the entry of Boolean operators and additional searchable information, limit criteria, subject subdivisions, etc.
2. Display of related word lists to help users find term(s) more specific to the one(s) entered or to find additional term(s) to enter into a Boolean operation.
3. Online subject heading displays enumerating the class number areas in which books are classified and the number of books found in each class number area under the subject heading of interest.

Recommendations for assisting OPAC users whose subject searches resulted in no retrievals are:

1. Availability of cross-references online.
2. Availability of related word lists to lead users to more general term(s).
3. Automatic truncation of users' input subject term(s).
4. Augmented subject access to bibliographic records.
5. Automatic linking of input free text terms to the OPAC's controlled vocabulary.

Difficulties with output control features occurred primarily in connection with entering commands. Traditional library catalog searching required a combination of mental exercise and physical skills. In OPAC searching, physical skills are "logicalized" into a series of command names or touches. OPAC searchers must always keep in mind: (1) the correct command name; (2) correct command entry procedures; (3) correct information about the display, e.g., field labels, next record number to be displayed, etc.; and (4) appropriate times to enter commands. A number of recommendations concerning commands were made to simplify a user's task of entering commands.

Problems with response time were usually specific to individual systems. Focus group interview participants were not particularly bothered by slow response times; when they anticipated slow response times, they sought ways to beat them. The following output control features and guidelines for output control features were drawn from an analysis and understanding of focus group participants' problems with specific OPACs' features:

1. Display forward.
2. Display backward.
3. Report of the number of citations or number of screens retrieved in response to an input access point.
4. Report of the number of screens required to display a full bibliographic record and how to display successive screens of displays.
5. Use of messages regarding circulation status that the library can live up to.
6. Display of output ordered by a characteristic that is easily and quickly understood by users.
7. Inclusion of subject headings in brief or intermediate level displays of citations retrieved in subject searches.

Users' difficulty interrupting the display of information and response time associated with displaying the next bibliographic record from a screen of records resulted in the description of a "report" key, which would allow users to obtain a report of the system's progress thus far. Users' unfavorable experiences with truncation led to the two following recommendations:

1. Automatic truncation of users' input access points when few or no postings are retrieved.
2. Natural language input of access points and system construction of the derived search key.

Offline user assistance problems were found relating to the contents of the OPAC, availability of signs and brochures, and availability of free OPAC terminals. It is suggested that libraries describe the contents and coverage of the OPAC in printed brochures and manuals, workshops, individual or group instruction, and in signs located at computer catalog terminals and the traditional library catalog. It is also suggested that the OPAC include a message at the conclusion of online searches briefly describing the OPAC's coverage and, in appropriate cases, telling the patron to check the library's traditional catalog if a comprehensive search is necessary. Implementing a number of methods to teach patrons how to use the OPAC is very important to accommodate the variety of personal learning styles and preferences of library patrons.

Excessive queuing at computer catalog terminals resulted in comments from focus group participants about maintaining the privacy of their online searches. The formation of a single queue in which users stand to wait for the next available terminal is recommended to segregate patrons actually performing online searches from those waiting to perform online searches. OPAC users at four of the five libraries in the survey considered the placement of more computer catalog terminals in the library, in locations other than the library, and in library locations other than near the traditional catalog very important when selecting library service improvements. Focus group interview participants were very keen on obtaining access to OPACs at home, in university offices, campus buildings, and elsewhere.

Considerations for the design of OPAC workstations were drawn up as a result of problems with complex keyboards, different types of terminals available at a single library or library system, lack of sufficient writing space, and height of terminal tables. Focus group participants who were most concerned about comfort at computer catalog workstations were technical services and processing staff whose jobs required many continuous hours at a terminal. Few of the libraries at which surveys or interviews were completed made hardcopy printers or printed output available. Survey respondents ranked printers high in a list of the top-ranked additional OPAC features, and focus group participants were very interested in obtaining hardcopy printouts of retrieved citations. Other services and features of interest expressed in focus group interviews were: (1) same-day service for obtaining hardcopy printouts; (2) placement of an automatic hold on retrieved library materials that were in circulation; and (3) automatic delivery of books to a patron's home or office.

Journal titles were ranked first by surveyed patrons at academic and public libraries in a list of library materials that should be added to the online public access catalog. Interview remarks demonstrated that users were referring to titles of journal articles in individual issues. Thus, they were interested in the addition to the OPAC of the contents of periodical indexes such as *Reader's Guide to Periodical Literature*, *General Literature Index*, and of specific subject-oriented periodical indexes, e.g., social sciences, humanities, etc. Newspaper articles, subject bibliographies, and other library reference works were mentioned by survey respondents and/or interview participants as materials they would like added to the OPAC. Library patrons felt that the OPAC had the potential to match and surpass the traditional library catalog. With the addition of community or campus information and all the library's materials from books to vertical files, the online public access catalog could truly become a library resource center.

7.0 USER ASSISTANCE FOR SEARCHING ONLINE PUBLIC ACCESS CATALOGS

7.1 INTRODUCTION

All six libraries (or library systems) at which focus group interviews were conducted and nine libraries (or library systems) at which questionnaire administration was carried out provided assistance to OPAC searchers. There was great variety in the type and amount of assistance provided. On the whole, all the libraries whose OPACs were studied provided assistance by reference librarians and made available printed instructions or brochures. Computer catalog terminals at every library were near reference librarians who handled both reference and OPAC-use inquiries. The Library of Congress' Computer Catalog Center was unique because the principal task of reference librarians stationed near OPAC terminals was to answer OPAC-use inquiries. Printed information sheets and brochures were available for the taking at most of the libraries where local OPACs were studied. At libraries where OCLC was studied, printed information sheets and brochures were available for reference. Beyond the availability of assistance from reference librarians and printed guides or brochures, the type and amount of user assistance varied greatly. Table 57 enumerates online and offline user assistance provided by libraries participating in the focus group interviews and/or questionnaire administration. The types of user assistance provided by each library at the time of the study (spring 1982) aided in the interpretation and understanding of responses to survey and interview questions.

Table 57. Online and Offline User Assistance

Institution	OPAC Name	No. of Complete Questionnaires		No. of Interviews/No. of Participants	Online and Offline User Assistance
		User	Nonuser		
Mankato State University (See Matthews, 1982, for analysis of questionnaires.)	MSUS/PALS	281	240	14/96	Reference librarians and graduate assistants always available near computer catalog terminal. Brochure always available for the taking. Many help displays available. Command chart mounted on flat surface of terminal adjacent to terminal screen. Freshman orientation includes terminal use. Bibliographic instruction class (optional) for credit. Few prompts or online guidance. Information staff gives demonstrations, workshops, class presentations, etc., by appointment.

Table 57. (cont.) Online and Offline User Assistance

Institution	OPAC Name	No. of Complete Questionnaires		No. of Interviews/No. of Participants	Online and Offline User Assistance
		User	Nonuser		
Library of Congress (See Anderson, et al., 1982, for analysis of questionnaires.)	MUMS SCORPIO	525	212	17/85	Computer Catalog Center (CCC-Jefferson Building) has terminals and printers available; CCC is staffed 8:30 a.m. to 5 p.m. weekdays, Saturdays, and 1-5 p.m. Sundays, with reference librarians whose principal purpose is to help OPAC searchers. Some reading rooms have produced their own instruction guides or signs. Reference staff handle reference inquiries and OPAC-use inquiries in reading rooms. When in stock, serious users can obtain flip charts by asking library staff. MUMS: Flip chart available at each terminal covers MUMS' use. Printed brochure sometimes available for the taking. Printed guide cards available for the taking. No prompts or guidance commands. No cross-references. SCORPIO: Flip chart available at each terminal, covers SCORPIO's use. Printed brochure sometimes available for the taking. Printed guide cards available for the taking. SHOW is an online information file about SCORPIO files, which is file-specific and can be accessed by users in SCORPIO files. Prompts and guidance comments present online. TEACH program was not widely publicized during study but walks users through searching SCORPIO Books file. No cross-references.
Syracuse University	SULIRS "homegrown"	1339	294	10/52	Supplies of brochures usually available in libraries had become low because the system was being enhanced during the study. Reference librarians near main library, engineering, and life sciences library terminals handled reference and OPAC-use inquiries. No classes. No cross-references. Help screens available, but brochures did not include the command name to obtain help screens. Some online prompts or guidance regarding displaying bibliographic records and starting a search. One-page information sheet taped to main library terminal tables covered search and display commands.
Ohio State University	LCS "homegrown"	1247	282	10/52	Brochure always available in holder attached to terminal. Reference staff, catalog information desk, and circulation staff near main library terminals handle reference, card catalog, circulation, and OPAC-use inquiries. Reference staff usually available near OPAC terminals at campus libraries to handle both reference and OPAC-use inquiries.

Table 57. (cont.) Online and Offline User Assistance

		No. of Complete Questionnaires		No. of Inter-views/No. of	
Institution	OPAC Name	User	Nonuser	Participants	Online and Offline User Assistance
Ohio State University (cont.)					Classes held periodically and announced beforehand. Minimal online prompts or guidance. No help screens. No cross-references. Individual instruction on OPAC use available by appointment or on-demand. Selected library staff give class presentations on OPAC use on-demand. Stopwords posted on all terminals. Library Institution Program (LIP) includes an exercise in OPAC use, mandatory for OSU freshman for the past 5 years.
Dallas Public Library	LSCAN "homegrown"	1081	299	10/59	Brochures are usually not available for the taking at the central or branch libraries. Two-page "brochurette" laminated and attached to some terminal tables at some central and branch libraries. Reference librarians staff information desk at central library and handle both reference and OPAC-use inquiries. Intermittent volunteer trainers are stationed at terminals and aid patrons who use OPACS (some volunteers work once a month and have not used the OPAC at any time during that month). At branches, reference staff handle both reference and OPAC inquiries and may be stationed 8-10 feet from OPAC terminals. Minimal online prompts or guidance. No help screens. No cross-references.
Iowa City Public Library	CLSI/PAC	410	144	10/62	One-page step-by-step guide posted at all terminals. Reference librarians near first floor catalog terminals. Volunteer trainers were discontinued when they could not tell difference between reference and catalog inquiries or were not assertive enough to offer assistance unless asked. Touch commands always listed in row on bottom of touch screens. Full-page help screens available; each screen is different and relates to what the user was doing. About 2000 cross-references available online. Videotape on OPAC use available for viewing at the library, at school libraries, and cablecast over the library's cable TV channel.
University of Akron	OCLC	132	100	None	Library staff near OCLC terminals handle reference and OCLC-use inquiries. OCLC-produced brochure, Using the OCLC Terminal, available on terminal turntables. Library-produced search instructions pasted on one side of terminal turntable. List of stopwords and strategy for use pasted on the other side of terminal turntable. No help screens. Few online prompts or guidance. Name authority available online but in separate file; requires searches separate from bibliographic file.

Table 57. (cont.) Online and Offline User Assistance

Institution	OPAC Name	No. of Complete Questionnaires		No. of Interviews/No. of Participants	Online and Offline User Assistance
		User	Nonuser		
Ohio University	OCLC	51	106	None	Library staff near OCLC terminal handle reference and OCLC-use inquiries. OCLC-produced brochure, Using the OCLC Terminal, available at the OCLC terminal. Library-produced information guide available for reference at OCLC terminal. No help screens. Few online prompts or guidance. Name authority available online but in separate file; requires searches separate from bibliographic file.
State Library of Ohio	OCLC	5	86	None	Reference librarian stationed next to OCLC terminal handles both reference and OCLC-use inquiries; circulation, and interlibrary loan library staff assist patrons in OCLC use. Stopword list taped to OCLC terminal. Library-produced guide to searching OCLC taped to terminal table. No help screens. Few online prompts or guidance. Name authority available online but in separate file; requires searches separate from bibliographic file.
University of Texas at Austin	OCLC	104	103	None	Reference librarian near OCLC terminal handles both reference and OCLC-use inquiries, available for assistance whenever OCLC system is available. "Flip Chart" reference guide available near terminals to lead users through different types of searches. Wall-mounted chart details basic commands and search keys. Workshops presented at the beginning of semesters. No help screens. Few online prompts or guidance. Name authority available online but in separate file; requires searches separate from bibliographic file.
University of Texas at Dallas	OCLC	37	104	None	Reference librarian near OCLC terminal handles both reference and OCLC-use inquiries. Library-produced brief instruction sheet attached to terminals. OCLC-produced Using the OCLC Terminal available at OCLC terminals. No help screens. Few online prompts or guidance. Name authority available online but in separate file, requires searches separate from bibliographic file.

7.2 NONUSERS (AND WHY THEY WILL NOT BE NONUSERS FOR VERY LONG)

Comparisons of questionnaire responses between computer catalog users and nonusers provided evidence of significant differences. In general, nonusers visited the library less frequently than users (see Table 9). There was a significant relationship between sex and OPAC use (a greater percentage of nonusers were female; see Table 15). Nearly 50% of nonusers (in contrast to 35% of users) had never used a computer system other than the library's computer catalog (see Table 68). There were similarities between the two groups in age (see Table 13) and in academic areas (see Table 20). Although there was a significant relationship between OPAC use-nonuse and general attitude toward the OPAC, the majority of users and nonusers expressed favorable attitudes toward the OPAC (see Table 31).

The reasons nonusers had not yet used the computer catalog were presented in section 5.4. Reviewed briefly, they are: (1) familiarity and trust in the traditional library catalog; (2) fear of computers or mechanical devices in general; (3) reluctance to learn how to use the OPAC; (4) time required to learn how to use the OPAC; and (5) perceived difficulty of learning to use the OPAC. Table 58 lists the five top-ranked reasons why nonusers had not yet used the OPACs at the five surveyed libraries.

Table 58. CLR-Aggregate and Individual Libraries:
Five Top-Ranked Reasons for OPAC Nonuse

Nonuser question 1. I have not used the computer catalog up to now because:	Ranks and Library or System*					
	CLR-Aggregate	Syracuse	Ohio State	OCLC System	Dallas Public	Iowa City Public
I have not yet taken training sessions on use	1	1	2	1	2	3
I have not had time to use it	2	2	3	3	1	4
I have no need to use any library catalog	3	3	1	5	4	2
I did not know there was a computer catalog	4			2	3	5
Visitor--infrequent library user	5	4	4		5	1
Card catalog easier		5	5			
I do not know where it is				4		
N (responses) =	9468	650	652	1230	707	334

*1 = most frequent response

According to the overall survey results, nonusers believed that the OPAC required training sessions to learn how to use it. Since such training sessions would take time to attend, the second ranked reason for OPAC nonuse (no time to learn) may actually be the principal reason for OPAC nonuse among surveyed nonusers. Among the top-ranked reasons for nonuse of the OCLC system were two categories that indicated library patrons were unaware of OCLC. Few libraries have more than one or two OCLC terminals available for public access; this contrasts with the rows of computer catalog terminals that access the local library database at individual libraries such as Syracuse, Ohio State, Iowa City Public, Dallas Public, etc. Terminals that access local library databases are usually placed near the card catalog or where the card catalog used to be, i.e., central locations that have a lot of visibility and patron traffic. OCLC public access terminals are usually found in general reference departments and in plain sight of reference librarians or behind the reference librarian's desk. Thus, the low number of OCLC terminals as compared with OPAC terminals and the placement of the OCLC terminals might have been responsible for OCLC nonuse. Library patrons' awareness of OCLC public access terminals might benefit from greater publicity through the use of large signs, coverage in library brochures, demonstrations for new student and faculty orientations, and installation on a turntable which can be positioned toward the patron or reference librarian.

In general, 75% of surveyed nonusers expressed that they were likely to use the OPAC in the future. Table 59 enumerates the percentages of nonusers at individual libraries and shows likelihood of future use.

Table 59. CLR-Aggregate and Individual Libraries:
Nonusers Likelihood of Future OPAC Use

Nonuser question 5. How likely are you to use the computer catalog in the future?	%CLR-Aggregate	%Syracuse	%Ohio State	%OCLC System	%Dallas Public	%Iowa City Public
		Library or Library System				
Very likely	34	28	28	40	52	36
Somewhat likely	41	39	43	38	31	38
Somewhat unlikely	16	21	22	15	12	11
Very unlikely	9	12	7	7	5	15
N(cases) =	3885	273	278	491	277	135

A comparison of nonusers' likelihood of using the computer catalog with reasons for nonuse demonstrated that nonusers who will probably not use the computer catalog in the future feel that the card catalog is easier to use than the OPAC, or they dislike computers in general (see Table 36). Nonusers' responses to the question about their likelihood of using the computer catalog indicated that there are a lot of nonusers who will soon become users. The finding that a greater percentage of first-time users were female is another indication that groups typically associated with nonuser characteristics are becoming OPAC users (see Table 16).

With regard to nonusers' expectation of the time required to learn to use the OPAC, over 66% of surveyed nonusers felt it would take under 30 minutes. Only at sites where the OCLC system was studied (University of Akron, Ohio University, State Library of Ohio, University of Texas at Austin, University of Texas at Dallas) did a large percentage of nonusers think that OPAC searching would take longer than 30 minutes to learn (see Table 60).

Table 60. Comparison of OCLC and Local Library OPAC Nonusers' Responses About Time Needed to Learn to Use OPACs

Nonuser question 2. How much time do you think it takes to learn to use the computer catalog?	%OCLC	%Syracuse, Ohio State, Dallas Public, and Iowa City Public
0 - 15 minutes	30	44
15 - 30 minutes	26	23
30 minutes - 1 hour	24	19
1 hour - 1/2 day	9	7
More than 1/2 day	11	7
N(cases) =	486	972

This difference might be attributed to the perceived complexity of the OCLC terminal with its many buttons or the few patrons actually seen using the OCLC terminal.

The difficulty of learning to use the online public access catalog was related to the amount of time that nonusers felt it took to learn to use the OPAC (chi square = 677.9, degrees of freedom = 8, probability = .0001). Table 61 shows that a large percentage of users who felt that the OPAC would be difficult to learn also felt that it would take longer than one hour to learn to use.

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Table 61. OCLC-Aggregate: Nonusers' Estimated Time Needed to Learn to Use OPACs and Difficulty of Learning

Nonuser question 2. How much time do you think it takes to learn to use the computer catalog?	Nonuser question 3. How difficult or easy do you think it would be to learn to use the computer catalog?		
	%Very easy	%Somewhat easy	%Difficult
0 - 15 minutes	74	27	5
15 - 30 minutes	18	31	16
30 minutes - 1 hour	6	29	28
1 hour - 1/2 day	1	9	18
More than 1/2 day	1	4	33
N(cases) =	268	686	496

There was a variety of reasons why nonusers had not yet used the computer catalog. Only two reasons listed in the questionnaire, ("card catalog is easier to use"; "dislike of computers in general") were connected to the likelihood that nonusers would not use the computer catalog in the future. Familiarity with and trust of the library's traditional catalog, reluctance to learn how to use the OPAC, and perceived time required for learning were also important barriers that nonusers must overcome about OPAC searching.

Nonusers might transfer their trust from the card catalog to the computer catalog when searches in the former produce an obviously small number of recently published library materials (given the freezing of the card catalog). Patrons will have to be convinced by the results of their own card catalog searches, signs placed in the card catalog area, or aggressive library staff assistance that the computer catalog must be searched to obtain comprehensive and up-to-date results. One way to help nonusers transfer their trust is to give as much information in the OPAC's bibliographic records as there was in the traditional library catalog's bibliographic records. One of the systems studied did not include subject headings in bibliographic records entered into the catalog prior to a certain date. Focus group participants at that library were quick to point out the absence of subject headings, which was why they relied on and trusted the card catalog.

Patrons' reluctance to learn how to use the OPAC will probably be overcome when they have to use the OPAC to achieve some important goal, e.g., to finish a class assignment, fix or buy something, or circumvent having to buy a book.

The time it takes to learn how to use the OPAC will probably be of interest to such nonusers, who may be more concerned about finding the object of their search than learning how to use the OPAC.

The most unlikely future users of OPACs are those who find the card catalog easier to use or who are afraid of computers in general. University faculty and older adults cited these as reasons for their nonuse (see sections 5.4.1, 5.4.1-5.4.3). Peer counseling was suggested by faculty users as a means for reaching faculty nonusers. Publicizing the availability of reference staff for individualized instruction might also draw out reluctant patrons and ensure that their first use of the OPAC is successful.

In general, 75% of surveyed nonusers expressed the likelihood that they would use the OPAC in the future. This means that many nonusers will eventually become users, regardless of changes in the libraries' methods of assisting patrons. However, libraries might have to change their methods of assisting patrons in OPAC use to reach nonusers who find the card catalog easier to use or are afraid of computers.

7.3 ONLINE AND OFFLINE USER ASSISTANCE

OPAC users answered survey questions about where they first heard of the OPAC, the types of assistance they used when first learning to use the OPAC, and the type of assistance they used in their most recent search of the OPAC. Users' responses provided a profile of the types of assistance offered by individual libraries (see Table 57).

Answers to the question about where users first heard about the computer catalog are listed in Table 62. Overall and at individual libraries, most OPAC users noticed computer catalog terminals in the library. There were differences from library to library. For example, more (24%) Ohio State users than users at other libraries first heard about the online public access catalog in a tour, orientation, or demonstration. Ohio State respondents were probably referring to the mandatory course all freshmen must take, in which there is a demonstration of the library's OPAC, an exercise in OPAC use, and a self-guided tour of the library. The university considers this mandatory course an orientation to the campus. A noticeably greater percentage of users at Iowa City Public than at other libraries first heard about the OPAC from an article or announcement, probably through newspaper articles describing and announcing both the opening of the new library and its new online catalog.

Table 62. CLR-Aggregate and Individual Libraries:
How Users First Heard About OPACs

User question 52. I first heard about this computer catalog from:	%CLR-Aggregate	%Syracuse	%Ohio State	%OCLC	%Dallas Public	%Iowa City Public
	Library or Library System					
Noticing a terminal in the library	64	68	49	40	68	56
Library tour, orientation, or demonstration	10	8	24	11	4	4
An article or written announcement	4	4	2	2	5	16
A course instructor	4	2	10	10	1	1
A friend or family member	9	9	9	6	8	16
Library staff	9	9	6	31	14	7
N(cases) =	7377	1267	1196	311	1006	372

At the five libraries where the OCLC system was studied, a large percentage of patrons first learned about OCLC from the library staff. Owing to the small number of OCLC public access terminals in libraries, OCLC was probably not as apparent to library patrons as the rows of terminals that access local library catalogs at libraries such as Syracuse, Ohio State, or Dallas Public. Library staff also might have referred patrons to the OCLC terminal in the course of answering their inquiries.

In general, it can be said that the placement of the computer catalog in highly visible area(s) will greatly increase patrons' awareness of the new catalog. At Mankato State, many patrons participating in interviews wanted the library staff to increase publicity of the library's system. Library staff already provided a variety of services regarding offline user assistance. Perhaps Mankato State users wanted an increase in publicity because they were so positive about the OPAC and the benefits of using it that they wanted everyone to use the library's online public access catalog.

Table 63 summarizes users' responses to a survey question asking how they first learned to use the computer catalog. A large percentage of the aggregate of OPAC users and users at Ohio State and Syracuse learned how to use the OPAC by referring to printed instructions.

Table 63. CLR-Aggregate and Individual Libraries: How Users Learned to Use OPACs

User question 53. I learned how to use this computer catalog:	Library or Library System					
	%CLR-Aggregate	%Syracuse	%Ohio State	%OCLC	%Dallas Public	%Iowa City Public
From a friend or someone at a near terminal	10	12	10	5	13	12
Using printed instructions	34	51	40	30	29	30
Using instructions on the terminal screen	19	11	12	9	7	23
From the library staff	19	12	17	41	39	15
From a library course or orientation	4	1	10	7	1	1
From a slide/tape/cassette program	1	1	1	1	1	1
By myself without any help	13	12	10	7	10	18
N(responses) =	11,385	1,870	2083	484	1421	531
N(cases) =	7,414	1,280	1211	314	1002	373

Syracuse provided library patrons with brochures, which were usually available near the rows of computer catalog terminals at the main library. Brief directions were available adjacent to terminals and were also taped to the terminal table. At the time of the study (spring 1982), new features were being added to the system. Brochures were running low and were sometimes hard to find because the library was revising them. Ohio State's brochures were produced on 8 x 14 paper, photocopied, folded accordion-style, and placed in holders attached to terminals. The brochures were inexpensive to reproduce and required little assembly. Ten percent of Ohio State users reported that they learned how to use the OPAC from a library course or orientation; this percentage was somewhat greater than at other libraries. The required freshman library instruction program might be the reason for the large percentage of Ohio State users who responded to this category.

An unusually large percentage of Dallas Public OPAC users and OCLC users reported that they learned how to use the system from library staff. This might be attributed to the large proportion of first-time users of both systems (21% and 20%, respectively). In response to a patron inquiry, reference staff at Dallas Public and OCLC libraries could have demonstrated the systems to patrons or showed them how to use the systems in the process of answering their inquiries. Dallas Public also had a crew of formally organized volunteers who were posted at computer catalog terminals to field OPAC-use inquiries. Both OCLC and the Dallas Public OPAC featured a minimal amount of online assistance, e.g., prompts, help screens, etc. (see Table 57); it was not surprising that over two-thirds of their users sought help from printed instructions or library staff to learn how to perform online searches.

In contrast to patrons' responses about user assistance at Syracuse, Ohio State, OCLC libraries, and Dallas Public, patrons at Iowa City Public took advantage of instructions on the terminal screen to learn how to use the OPAC, or they learned it by themselves. Iowa City Public's OPAC featured full-page help displays (which differed depending upon how far the user had progressed in the search), cross-references, and a horizontal array of touch commands at the bottom of the terminal screen (see Table 57).

The types of assistance used by OPAC searchers to help them carry out their most recent OPAC search are listed in Table 64.

Table 64. CLR-Aggregate and Individual Libraries:
Types of Assistance Consulted in Most Recent OPAC Search

User question 8. I got help in doing this computer catalog search from:	Library or Library System					
	%CLR-Aggregate	%Syracuse	%Ohio State	%OCLC	%Dallas Public	%Iowa City Public
Printed material or signs	31	41	45	28	27	19
Instructions on the terminal screen	24	17	21	16	12	33
Library staff member	17	7	13	41	38	11
Person near	4	4	3	3	8	5
I did not get help	24	31	18	12	15	32
N(cases) =	7,711	1583	1707	481	1394	495
N(responses) =	10,135	1302	1221	327	1019	399

Syracuse and Ohio State OPAC users demonstrated a reliance on printed materials to help them complete their online searches. The large percentage of Syracuse users who reported that they did not get help could have been taking advantage of the system's directive online prompts, which guided the patron in the display of retrieved citations (see Table 57). Displays of single and multiple bibliographic records were earlier cited by Syracuse users as features with which they had favorable experiences (see Table 50).

Unusually large proportions of OCLC and Dallas Public OPAC users relied on the librarian to help them perform their most recent online search. Because of both the large number of first-time OPAC users and the absence of online user assistance in these systems, a few users might have been unable to learn how to use the OPACs or perform online searches after their initial use without help from the librarian or printed materials.

The experience of Iowa City Public's OPAC users contrasted with that of users at the other systems studied. Nearly two-thirds of Iowa City Public users relied on the terminal screen instructions or did not get any help. Its users earlier identified a number of output control and online assistance features with which they had had favorable experiences: remembering commands in the middle of the search; understanding initial screen instructions; locating call numbers, etc. (see Table 50). The availability of online user assistance such as help screens and arrays of touch commands are also featured in Table 57.

Improvements to Iowa City Public's OPAC that were cited by interview patrons and pertained to online user assistance were shorter help screens, lighting (reverse video) of the next logical touch command to direct users to another command (of the 6-10 listed), and making commands more indicative of their functions.

A comparison of the frequency with which searchers used the online public access catalog and the types of assistance they consulted in their most recent OPAC search brought to light interesting results (see Table 65).

Table 65. Individual Libraries: Types of Assistance Consulted by Very Frequent and First-Time OPAC Users

User question 49. I use this computer catalog:

User question 8. I got help in doing this computer catalog search from:	Syracuse		Ohio State		OCLC		Dallas Public		Iowa City Public	
	%Every or Most Library Visits	%Not Before Today	%Every or Most Library Visits	%Not Before Today	%Every or Most Library Visits	%Not Before Today	%Every or Most Library Visits	%Not Before Today	%Every or Most Library Visits	%Not Before Today
Printed material or signs	39	44	45	39	31	19	28	27	18	28
Instructions on the terminal screen	16	24	20	18	17	13	12	12	32	28
Library staff member	6	12	12	23	27	66	33	46	10	18
Person near	2	11	2	13	3	1	7	9	3	21
I did not get help	36	9	21	7	22	1	20	5	37	5
N(responses) =	986	80	986	92	127	84	767	305	322	39

There was a sizable difference between frequent users who did not use any assistance and first-time users who did not use any assistance. For example, 22% of OCLC frequent users did not get assistance in comparison with 1% of first-time users of OCLC who did not get assistance. This difference was evident at Syracuse, Ohio State, OCLC libraries, and Dallas Public. The difference between frequent and first-time OPAC users was greatest at OCLC libraries, where 66% of the first-time users and 27% of frequent users obtained assistance from library staff during their most recent OPAC search. In contrast, the types of assistance sought by first-time and frequent OPAC users at Iowa City Public was somewhat similar; both groups consulted terminal screen instructions in virtually equal proportions but comparatively few first-time users did not get any help whatsoever. It may be safe to conclude that library patrons who access computer catalogs featuring online user assistance will take advantage of it and use it in favor of assistance from library staff.

A similar distinction was found between very frequent OPAC users and patrons who rarely used the OPAC and the types of user assistance they consulted (see Table 66). Library patrons who rarely used the OPACs at Syracuse, Ohio State, or Dallas Public were more likely to obtain the assistance of library staff than frequent OPAC users at these libraries. At Syracuse, OCLC libraries, and Dallas Public, a greater proportion of frequent OPAC users sought no help with their most recent OPAC search than infrequent users. At Iowa City Public, the two categories ranking highest in terms of the percentages of responses between frequent and infrequent OPAC users were the same; both groups of users relied on terminal screen instructions or sought no help.

Table 66. Individual Libraries: Types of Assistance Consulted by Very Frequent and Very Infrequent OPAC Users

User question 8. I got help in doing the computer search from:	Syracuse		Ohio State		OCLC		Dallas Public		Iowa City Public	
	%Every or Most Library Visits	%Rarely	%Every or Most Library Visits	%Rarely	%Every or Most Library Visits	%Rarely	%Every or Most Library Visits	%Rarely	%Every or Most Library Visits	%Rarely
Printed material or signs	39	55	45	44	31	28	28	22	18	19
Instructions on the terminal screen	16	12	20	21	17	17	12	8	32	38
Library staff member	6	15	12	14	27	43	33	40	10	14
Person near	2	8	2	9	3	2	7	14	3	5
I did not get help	36	10	21	13	22	10	20	16	37	24
N(responses) =	986	60	986	112	127	60	767	50	322	21

Table 67 lists the OCLC-aggregate percentages resulting from a comparison of types of assistance consulted by frequent users of a computer system other than the library's OPAC and library patrons who have never used a computer besides the library's computer catalog. There was little difference between frequent users of other computer systems and library patrons who had never before used a computer other than the library's OPAC. Thus, frequency of use of other systems and types of assistance consulted were not related.

Library patrons most frequently found out about the library's OPAC by seeing a terminal in the library. Many OCLC patron users were introduced to the system by library staff. A large proportion of OPAC users at Syracuse and Ohio State learned how to use the computer catalog from printed materials. A large proportion of OPAC users at Dallas Public and OCLC-system libraries relied on the librarian to teach them how to use the system, and both systems had many first-time users. Iowa City Public's OPAC, which featured much online user assistance, was the only system where most first-time users, very infrequent users, and frequent users relied on instructions on the terminal screen or sought no help to perform their most recent online search. Few first-time users or very infrequent users of the other five systems studied sought no help during their most recent online search; a large proportion of first-time and very infrequent users consulted the librarian. The results at Iowa City Public indicate that the availability of online user assistance in computer catalogs could reduce the need for assistance from library staff.

Table 67. OCLC-Aggregate: Types of Assistance Consulted by Frequent Users of Other Computers and Library Patrons Who Had Never Used Another Computer

User question 8. I got help in doing this computer catalog search from:	User question 51. I use a computer system other than the library's computer catalog: %Daily or Weekly	%Never
Printed material or signs	37	35
Instructions on the terminal screen	19	18
Library staff member	17	22
Person near	4	5
I did not get help	22	20
N(responses) =	1602	2021

7.4 RECOMMENDATIONS FOR ONLINE AND OFFLINE USER ASSISTANCE

The analysis of focus group interviews and questionnaires provided no evidence that there were right or wrong approaches to user assistance or that one approach was overwhelmingly acceptable or sufficient for assisting most OPAC users. First-time and very infrequent users consulted the librarian; frequent OPAC users consulted printed material or terminal instructions. Users of systems that featured online assistance took advantage of it whether they were frequent, infrequent, or first-time OPAC users; the availability of online user assistance might reduce the need for OPAC-use instruction and trouble-shooting. It is suggested that libraries offer a variety of approaches to online and offline user assistance to accommodate the variety of personal learning styles and preferences of OPAC users. The following sections cover recommendations for online and offline user assistance based on the analysis of questionnaire results and an understanding of focus group interview comments, particularly those that were specific to individual libraries and online public access catalogs.

7.4.1 Brochures, Information Sheets, and Other Printed Materials

In the survey question requesting users to check improvements to library services, the category "more terminals" ranked first among service improvements at four of five surveyed libraries (see Table 55). Dallas Public users ranked two categories, i.e., chart of commands and manual or brochure, second and third among the listed improvements. Dallas Public's list of aids contrasted with those of other libraries (see Table 57), because printed material was seldom available at the central or branch libraries. Perhaps this and the fact that the Dallas Public OPAC provided few online user aids caused users' interest for printed material about OPAC use. Surprisingly, posting a chart of commands near the terminal ranked second among Ohio State users. Since brochures on the use of the Ohio State OPAC are virtually always available at terminals, users might have been referring to a type of command chart similar to those at Mankato State which are mounted on the flat surface of the terminal adjacent to the screen.

OPAC users in focus group interviews expressed the necessity of learning how to use the computer catalog with printed materials or during the online search:

- If you get lost, you just look at the brochure. The booklets are more than helpful. (Mankato State, undergraduate users)
- I need to have a manual readily available when I search. (Mankato State, faculty users)
- I always have to use printed brochures. (Syracuse, undergraduate light users)
- I still don't know the abbreviations for each library, so I read the chart to find out. (Dallas Public, middle school users)

Based on an understanding of focus group interview participants' remarks about printed materials, guidelines about the content, length, and layout of printed materials have been drawn up and are as follows:

1. Prepare printed material of varying lengths, e.g., command chart to mount on individual terminals, 1-2 page brochure that users can consult every time they perform an online search and can take away with them (and should be inexpensive to replace), detailed brochure or guide available to serious users or ones that access the OPAC from their home or office, etc.
2. Include meanings for abbreviations used in OPAC records, e.g., library branch abbreviations, circulation and reserve codes, journal holdings codes, field labels, command names, etc.
3. Show examples of the major search approaches (author, title, author/title, subject, call number) by listing command name, field label, and well-known bibliographic information, e.g., FIND AU DICKENS CHARLES, or BRS SU DRUG ABUSE.
4. Identify field labels and field information in examples of brief, intermediate, and full bibliographic records and circulation records.
5. Avoid small print, footnotes, and library jargon.
6. Highlight the basics of subject searching and fruitful strategies, e.g., explain the controlled vocabulary approach, subdivisions, the

strategy of checking subject headings in relevant and retrieved records and inputting these in subsequent searches, the use of call number searching to browse the bookshelves online, etc.

7. Enumerate coverage and contents of the database and tell users when they should consult the library's other catalog(s), e.g., to find all journal titles, to find books published before a certain date, etc.

8. Pretest printed material by giving it to trusted patrons and staff and obtaining their suggestions for changes or improvements.

7.4.2 Assistance from Library Staff

The Library of Congress was the only institution that provided a location where a reference librarian's chief task was to handle inquiries about OPAC use. The reference librarian's chief task at all other libraries where surveys or interviews were completed was to answer reference questions. Focus group interview participants at some libraries were confused about whether reference librarians knew how to use the OPAC and/or would help them with their online searches. Reference staff near computer catalog terminals should consider placing information signs at the reference desk identifying reference librarians as sources of OPAC assistance. Signs such as "Reference and computer catalog assistance" or "Reference and online catalog information" might be more informative to OPAC users than the traditional "Reference Assistance" or "Information Desk" signs.

The types of assistance provided by library staff ranged from individualized instruction to trouble-shooting. The experiences of library staff listed below describe the range of services they provided to OPAC users who obtained their assistance.

- On-the-spot individual instruction. Library staff taught patrons how to use the OPAC on an informal and on-demand basis.

- Answering reference inquiries. When the patron identified his information need, library staff realized that the OPAC user was going to search the OPAC to answer what was essentially a reference question.

- Getting the patron started. Library staff set up or started the terminal, showed patrons how to enter known-item access points and display retrieved records. Many times they taught the patron as much as necessary for the moment, then handled patrons' subsequent inquiries as trouble-shooting. Many times when other patrons were waiting for assistance, this was the approach used by staff.

- Trouble-shooting. This was usually quick assistance to tell patrons the name of a field label, display command, subject terminology, meaning of an abbreviation, etc.

- Group instruction. Formal demonstration, workshop, or class presented by library staff to an organized group of library patrons or library staff.

- Performing online searches for patrons. Sometimes library staff performed patrons' searches instead of teaching patrons how to do the searches themselves. Librarians performed such a service for a variety of reasons; it was sometimes more efficient to do the search than to teach a patron because of other patrons requiring the librarian's services; or librarians felt that the system itself or the function that must be performed was too difficult for patrons to learn.

- Individual instructions by appointment. Library staff taught patrons how to use the OPAC at a prearranged time and place.

- Preparation of offline user aids. Indirectly, library staff assisted patrons when they prepared information brochures, cassette or slide/tape programs, etc.

Professional library staff were not the only intermediaries available to answer patrons' inquiries about OPAC use. Iowa City Public experimented with volunteer trainers who were stationed at OPAC terminals to field users' problems. Library staff ended the volunteer program when they realized that volunteers had difficulty distinguishing between reference inquiries and OPAC-use problems and failed to be sufficiently aggressive to elicit problems from patrons. Like Iowa City Public, Dallas Public took advantage of volunteer trainers to station at OPAC terminals and handle OPAC-use inquiries. Dallas Public's volunteer trainer program was organized by a local community service organization. Reference staff noted that some volunteer trainers used the system only when they visited the library for their volunteering, thus, volunteers' skills were rusty on occasion. Libraries who recruit volunteer trainers could provide monthly workshops to help trainers exercise their catalog searching skills, inform them of new developments in the library's services, teach them how to use new features of the computer catalog, and show them the library's support of the trainers. Also, volunteers could debrief library staff about patrons' problems, thus helping library staff in the development of the system or planning of new services.

Patrons at libraries where there were no formal workshops or classes expressed interest in such group instruction. Remarks in focus group interviews were:

- I tried to use the computer a few times, but I didn't know how to use it. I would like a course in the beginning of school. (Syracuse, undergraduate nonusers)

- Offer a class on the computer catalog that would include helpful hints on how to conduct library research. (Syracuse, undergraduate users)

- When we learn how to use the computer catalog, we could also learn differences between the card and computer catalogs. (Syracuse, graduate light users)

- In-depth training available through the Congressional Research Service should be available to the general public. (Library of Congress, General Reading Room reference staff)

- Library should have courses on how to use the computer. (Iowa City Public, adult nonusers)

Syracuse University, acting on the preliminary recommendations from the study's findings, recently instituted a variety of formal approaches to group and individualized instruction.

The growing complexity of online public access catalogs was not welcomed by some library staff. They felt that enhancements to the system or system functions would make some OPACs unnecessarily complex, and thus confusing or overwhelming to OPAC users. Library staff noted that at times they preferred to perform a patron's search because it was a quick cure or more efficient use of their time and effort and the patron's.

Library staff expressed their own special needs to provide better service to patrons. In addition to the usual needs about increased professional staffing on weekends and weekdays and more incoming phone lines to handle inquiries, library staff wanted: (1) lead time from faculty to prepare for class assignments that required an unusual volume of patron inquiries; (2) knowledge of recent developments in the enhancement of the OPAC to exercise their skills; and (3) up-to-date lists of abbreviations and codes used in the OPAC and in OPAC records.

Patrons felt the library staff was an indispensable component of computer catalog service. Focus group interview participants underlined the importance of staff assistance.

- I need the librarian. (Library of Congress, shelf holder light users)
- It was very easy to ask questions because the people who work here are happy to help you. (Mankato State, graduate light users)
- I would rather learn from a person than from the computer catalog how to use it. (Syracuse, undergraduate nonusers)
- The librarian was helpful finding a book for my first grader who reads at third-grade level. I often need someone's advice. (Dallas Public, adult nonusers)

7.4.3 Online User Assistance

Library patrons and staff expressed interest in the implementation of computer-assisted-instruction (CAI) to assist library patrons and staff in learning to use the OPAC. At the time of the study, only the Library of Congress featured computer-assisted instruction through the library's TEACH program. Unfortunately, the program was not well publicized and few focus group participants--staff or patrons--knew of the program's existence or availability. Since the preliminary findings of the study were released, Syracuse's library administration has revealed plans for the building of a CAI training module, either micro-computer-based or as a module available within or without the library's OPAC. Focus group participants remarked about CAI as follows:

- Have a simulation of the computer catalog or an offline education terminal. (Syracuse, reference staff)

- (I'd like a system) like PLATO; there are programs where the machine will prompt you so that you can follow one step after another instead of referring to printed instructions, trying to find the right place in the instruction, etc. Instead, you can sit down and feel very intelligent. (Library of Congress, processing staff light users)

- We could use a computer-assisted instruction program which you could use on your own and learn how to use the computer. (Mankato State, faculty users)

Another means of online assistance that focus group participants envisioned was the availability of multiple-dialog modes geared to different levels of patron experience with the system. For example, there would be different dialog modes for frequent OPAC users, first-time OPAC users, and experienced OPAC users who consulted the system less than monthly. Patrons gave their ideas about such dialog modes:

- Build a front end (to the OPAC) that asks the patron: (1) have you used this before? (2) do you want help? (3) have you ever worked a terminal before? (4) do you read English? This is not an invasion of privacy because people don't want to ask for help. They will go back home thinking the library has a good system that even I can use! (Library of Congress, Science Reading Room users)

- There should be two catalogs: (1) specialized. for the Congressional Research Service's advanced researchers, (2) general purpose; the latter should be menu-driven. (Library of Congress, shelf holder light users)

- Have naive, casual, and experienced approaches. (Syracuse, reference staff)

- The system must have the flexibility of letting the user progress at his own rate of speed through the search, and if a search is sophisticated, the amount of time spent at the terminal would still be minimal. The beginner would be provided with as many steps as needed to get to a successful end. To be able to serve the beginner and the experienced user at the terminal at the same time would be a good goal for the system. (Ohio State, catalog information desk)

Many of patrons' remarks were oriented toward providing a step-by-step approach to the process of computer catalog searching. Ohio State, OCLC, and Dallas Public users listed step-by-step instructions among the top-ranked additions to computer catalogs (see also Table 54). Patrons were probably referring to a menu-based dialog in which they would essentially be led by the hand through the search and not required to know the correct sequence of commands or names for fields and commands. Such menu-based approaches are usually associated with dialog modes for infrequent or first-time OPAC users.

Focus group participants recognized the need for error messages which explained the nature of the error. Error messages which contained jargon or did not tell the user how to correct the error were considered useless by patrons. Furthermore, such error messages seem to blame patrons and turn off their interest in searching the online public access catalog in the future.

- My parents taught me a value system about waste...what's happening with all these errors I make in the computer? I had my 9-year old son with me, and I don't type and I thought I'd practice typing when I saw the computer's keyboard. You make all these errors and you say, "Ugh, I put it in there wrong". My son said, "You keep making mistakes. You're messing the thing up, Mommy". And I said, "Yeah, you're right. I'm wasting energy. I don't know why I'm making them". (Syracuse, graduate light users)
- I need something besides the computer saying something like "wrong, type help command". I got frustrated, walked away, and came back another day. (Mankato, library graduate assistant users)
- I would like the computer to tell me what to do when I make an error, e.g., when you spaced when you shouldn't have, or you didn't put in the "/", and give step-by-step directions of what to do to resume from the error without losing my place in the search. (Ohio State, faculty nonuser)
- I put in "Buckley Wm" and the computer should have said "Don't use abbreviations". (Dallas Public, volunteer trainers)
- I want to put something in the computer and let IT be frustrated finding out whether or not it has it. I now have to react to the responses of the computer instead of vice versa. (Iowa City Public, adult users)
- I feel that the data is here, but leave very frustrated saying "I know it's here, darn it, it's got to be here, the world cannot have gone on this long without this information being available...but I punch and punch and punch (data into the computer catalog) and get nowhere. (Library of Congress, Science Reading Room users)

Error messages should be diagnostic rather than imputative or unforgiving. Study of transaction logs through transaction analysis (see Volume I) or categorization of users' errors (Johnson, 1982) is needed to identify frequently occurring errors; then diagnostic error messages could be composed to replace the existing unforgiving and imputative error messages in online public access catalogs.

OPAC users and library staff wanted prompts embedded in the dialog to assist them in selecting their next step in the ongoing search. The need for online prompts was underlined by users at Iowa City Public who ranked the ability to see whether a book is checked out first among a list of 14 additional OPAC features. The Iowa City Public OPAC already included circulation information in full bibliographic records, but many users must not have been aware of such information because it required the touch of brief bibliographic records or the first page (screen) of full bibliographic records. Prompts were not provided to inform users about checking circulation status when brief records were displayed or when the first page of multiple full bibliographic records was displayed. Examples of interview comments about prompts are as follows:

- When I have (retrieved) a lot of items, the computer would say "Do you really want to know all about the United States or are you just looking for a state or a region?" (Syracuse, library support staff light users)

- We need a message to tell people to limit their TERM search (i.e., component word subject search) if too much is retrieved. Need more user cues when nothing is found. (Mankato State, public service and media education faculty)

- I find my own word processor more congenial (than the OPAC)...it offers me a menu that tells me many more things that could be done with it. (Ohio State, faculty users)

- After you've done a step, it could print out what you should do next. (Iowa City Public, high school light users)

- Embed instructions in the computer for finding a title, or an author, or a few books on a subject; systems now make providing that information tedious and frustrating. (Library of Congress, General Reading Room reference staff)

Help screens were mentioned by some focus group participants as a means of assistance during the ongoing online search. Iowa City Public's experience with help screens indicated that there should be many screens, and they should be oriented to the user's progress in the online search rather than a general, all-purpose help screen from which users could select additional screens about commands, display formats, Boolean operators, field names, etc. However, some Iowa City Public users reported embarrassment about having to read or access help screens.

The need for a user-oriented interface was clearly expressed by users' remarks about carrying on a conversation with the computer catalog, talking to it, or wanting it to evaluate what they have just entered. Library patrons would like to feel that the online public access catalog is working together with them to find library materials rather than working against them.

- I would be interested if you could ask the computer a question. Talk to it a bit. Communicate with the computer more...there are times when I don't use it because I would like to ask a question. (Mankato State, undergraduate new users)

- I'd like the computer to talk back to me if it didn't understand what I had in mind. (Mankato State, graduate light users)

- We need a message that would talk to every individual personally. (Dallas Public, reference staff)

- I want to talk to the computer like I talk to my graduate assistant to get what I want (from the library). (Syracuse, faculty light users)

- Computer catalog could say to me, "Hello, I'm here to find your book". But if I'm in a rush, I wouldn't read the message. Don't make me put in all the command information like author or title. The computer catalog can figure out what I'm looking for. (Syracuse, graduate light users)

7.5 RELEARNABILITY OF ONLINE PUBLIC ACCESS CATALOGS

Relearnability of the computer catalog was a theme that emerged in focus group interviews with library staff, and experienced and light patron users. When voicing concern about relearning the OPAC, one frequent Science Reading Room OPAC user at the Library of Congress defined the problem of relearnability:

> "I use the computer catalog every six months. Every time I come to use the system, I have to start over...I have never been successful remembering (how to use the system). Make it menu-driven. Takes me an hour or two to remember."

Statistics on frequency of library visits (see section 3.2) and OPAC use (see section 3.3) have provided evidence that OPAC use was not an everyday task of library patrons at any of the five types of libraries surveyed. The percentages of infrequent use of the online public access catalog were greatest at federal and state libraries.

The survey covered the use of computer systems other than the library's computer catalog. There was a significant relationship between computer use and the use-nonuse of the library's computer catalog (chi square = 228.9, degrees of freedom = 5, probability = .0001, r = .13). Table 68 presents the CLR- and OCLC-aggregate responses by OPAC users and nonusers.

Table 68. CLR- and OCLC-Aggregates: Frequency of Computer Use Other Than the Library's OPAC

User question 51. Nonuser question 9. I use a computer system other than the library's computer catalog:	CLR-Aggregate		OCLC-Aggregate	
	%User	%Nonuser	%User	%Nonuser
Daily	13	8	14	10
Weekly	17	13	16	12
Monthly	13	11	13	10
About four times a year	12	9	11	9
About once a year	9	9	9	9
Never	36	50	37	50
N(cases) =	7410	3875	4176	1453

In general, half of OPAC nonusers have never before used a computer. Approximately one third of OPAC users have never before used a computer. Although there was a significant relationship between the OPAC use-nonuse and the use of another computer system, there were virtually no other variables or characteristics that singled out frequent users of "other" computer systems, e.g., general attitude toward the OPAC, search satisfaction, purpose of the search, ease of system use, type of library, educational level, etc. It might be expected that frequent users of "other" computer systems would have a distinctly favorable attitude toward the OPAC or find its features easier to use than infrequent users or nonusers of "other" computer systems. In the future, this variable and its relationship to other variables and to library patron characteristics will be interesting to watch as personal computers grow in acceptance, usage, and importance in everyday living (e.g., Time's 1982 Man of the Year). In the meantime, many library patrons will approach the library's online public access catalog with little knowledge of and experience with computers. Furthermore, their use of the OPAC will be only a fleeting instant in an otherwise busy day of unrelated tasks. Improving relearnability of existing OPACs and ensuring relearnability in future OPACs is a key issue, given our knowledge of frequency of library visits, of OPAC use, and of patron use of computer systems other than computer catalogs.

The following comments capture the flavor of OPAC users' concern about the relearnability of OPACs:

- There will be a long period of time in between when I use (the computer catalog) again...when I use it now in May and then next year...so there's been all that interim of nothingness. (Library of Congress, shelf holder light OPAC users)
- Twice-a-week user will forget how to use (the OPAC). (Library of Congress, General Reading Room reference staff)
- I don't go to the computer enough to remember all its codes and mechanics. (Ohio State, faculty light users)
- I don't use MUMS everyday; when I train someone else, I must relearn. (Library of Congress, processing staff)
- I figure when I am classifying online I will be able to learn to do the process that I have to do on a regular basis, but the searching I do now, I do so infrequently and so painfully that I forget...and have to take my instructions with me. (Library of Congress, processing staff)
- I use the computer catalog so rarely that I'm so unfamiliar with it that it's easier to use the old way...I have so much trouble using it and I can't follow the printed instructions. I get personal instruction but forget the system three weeks later and go back to the old way (cards). (Library of Congress, special collections staff)

Some system designers are already implementing menu-driven dialog modes to assist first-time or infrequent OPAC users. The OPACs at the University of California and Dartmouth offer patrons a choice between two dialog modes: menu-driven and command-driven (Radke, Klemperer, and Berger, 1982; Fayen and Cochran, 1982).

A number of methods covered in section 7.4 could be used to improve the present relearnability of computer catalogs. In the long run, online user assistance (such as computer-assisted instruction, directive and suggestive prompts, and multiple-dialog modes) might be the most successful approach.

Besides menu-driven dialog modes, other methods have been proposed to assist first-time, casual, infrequent, or inexperienced OPAC users. Hildreth (1982, pp. 65-66) introduced suggestive prompts as a means of informing OPAC users of possible action(s) that may or may not be taken. The promising research of Clark (1982) will explore Salomon and Snow's concept of supplantation (which is defined as the overt replacement in an instructional presentation of covert mental operations, which the learner would otherwise have to learn on his own) in the online retrieval environment. Clark's experiment will test whether an online system that overtly models a simple search algorithm can concurrently and covertly teach the algorithm to users of the system.

The evidence in favor of ensuring OPAC relearnability is staggering: (1) computer catalog users at the five types of libraries studied did not access the OPAC every day; (2) half of OPAC nonusers and one-third of OPAC users had never used a computer system other than the library's OPAC; and (3) patrons' use of the OPAC was probably a fleeting instant in an otherwise busy day of unrelated tasks. Improving the relearnability of existing OPACs and ensuring it in future OPACs is a key issue in the development of online public access catalogs.

7.6 SUMMARY OF FINDINGS

The types of online and offline assistance provided to OPAC users at the nine surveyed libraries and six libraries where focus group interviews were conducted demonstrated the variety and amount of assistance available. All libraries offered the assistance of reference librarians who were stationed near the OPAC terminals. Only the Library of Congress offered a center for OPAC terminals where reference librarians' principal task was to answer inquiries about OPAC use. At other libraries, reference librarians handled both reference and OPAC-use inquiries. Nearly all libraries featured printed materials on OPAC use, which were available for reference at the terminal or for the taking.

Over 75% of surveyed nonusers were likely to use the computer catalog in the future. The reasons for nonuse of the online public access catalog were: (1) familarity and trust in the traditional library catalog; (2) fear of computers or mechanical devices in general; (3) reluctance to learn how to use the OPAC; (4) time required to learn how to use the OPAC; and (5) degree of difficulty expected in learning to use the OPAC. Surveyed nonusers ranked not having taken training sessions in OPAC use and not having time to learn how to use the OPAC among the major reasons why they had not yet used it. Library patrons who would not use the computer catalog in the future had selected "card catalog easier" or "dislike computers in general" as the reasons why they had not yet used the online public access catalog.

The majority of surveyed nonusers felt that it would take less than 30 minutes to learn how to use the OPAC. More nonusers at the five libraries where OCLC was the system under study than at libraries where local online access was studied (Syracuse, Ohio State, Dallas Public, Iowa City Public) thought that it would take more than 30 minutes to learn how to use OCLC. The difference between the two groups might be attributed to the perceived complexity of the OCLC terminal with its many buttons, the paucity of patrons actually seen using the OCLC terminal, or the location of terminals in reference departments.

Nonusers' perceived difficulty of learning to use the OPAC was related to the amount of time they felt it would take to learn how to use the OPAC. A large percentage of nonusers who felt that the OPAC would be difficult to learn also felt that it would take longer than one hour to learn.

Many current nonusers of OPACs will eventually become users regardless of the changes in libraries' methods of assisting patrons. Libraries might have to change their methods of assisting patrons to win over nonusers who feel that the card catalog is easier to use than the OPAC and who dislike computers in general. Suggestions were given about how libraries could assist such staunch nonusers.

The majority of OPAC users at surveyed libraries first heard about the computer catalog by seeing a terminal in the library. A number of Ohio State users had first heard about the library's OPAC by taking a course, which featured a self-guided tour of the library and an exercise in the use of the online public access catalog. OCLC users and OPAC users at Dallas Public were first introduced to the online system by library staff. The five OCLC libraries and Dallas Public were different from other surveyed libraries because of the large percentage of first-time users. A large number of OCLC users and Dallas Public OPAC users also learned how to use the OPAC from library staff. In contrast, users at Syracuse and Ohio State relied primarily on printed material to learn how to use the OPAC. Iowa City Public's OPAC had been cited by OPAC users for its online assistance in a discussion of OPAC features with which users had had favorable experiences (see Table 50). Users of Iowa City Public's OPAC learned how to use the system by consulting instructions on the terminal screen or in printed materials.

The source of assistance employed by OCLC users and Dallas Public users in their most recent search was the library staff. Syracuse and Ohio State OPAC users consulted printed material or signs. Iowa City Public's users did not seek help, or they followed the instructions on the terminal screen to complete their most recent search of the OPAC. The experience of Iowa City Public's patrons contrasted with that of patrons at other libraries because the former relied on the available online assistance to perform their searches.

Comparisons of the assistance used by very frequent users of the Iowa City Public OPAC with that used by very infrequent or first-time users showed similar patterns in the sources of assistance employed. In contrast, many first-time users and infrequent users of the Syracuse, Ohio State, Dallas Public, and OCLC systems obtained the assistance of the library staff. The findings at Iowa City Public suggested that OPAC searchers would use online assistance when it was provided; this might also reduce searchers' dependence on the library staff, especially those searchers who rarely used the OPAC or used it for the first time.

Enhancements to OPACs regarding offline or online user assistance were primarily gleaned from focus group interviews. Surveyed users at Dallas Public and Ohio State called for printed materials to assist them at the computer catalog terminal. Since the latter already provided printed brochures for the taking, survey respondents probably wanted a command chart mounted on the terminal near the screen and similar to the charts on terminals at Mankato State. Among the additional OPAC features selected by survey respondents, users at the five OCLC libraries, Ohio State, and Dallas Public ranked step-by-step instructions at least fifth.

An understanding of focus group interview participants' remarks about printed materials available in their libraries led to the following guidelines about the production of printed materials:

1. Prepare printed materials of varying lengths.

2. Include meanings for abbreviations used in OPAC records.

3. Show examples of the major search approaches, i.e., author, title, author/title, subject, call number.

4. Identify field labels and field information in examples of the available bibliographic record displays.

5. Avoid small print, footnotes, jargon.

6. Highlight the basics of subject searching.

7. Enumerate the coverage and contents of the database and tell users when they should also consult the library's other catalog(s).

8. Pretest printed material.

The types of OPAC assistance provided by library staff were enumerated. Library patrons expressed the value of consulting the library staff about OPAC-use problems. Library staff at Dallas Public and Iowa City Public reported their experience with volunteer trainers stationed at terminal locations to handle patron inquiries about OPAC use. The experience with volunteer trainers at these two libraries differed. Libraries considering volunteer trainers should provide workshops on at least a monthly basis to help trainers exercise their OPAC searching skills, inform them of new developments in the library's services, and teach them new OPAC enhancements or search strategies. Also, volunteers could debrief library staff about patrons' problems, which could help in the enhancement of the system or the planning of new services.

Patrons at libraries where there were no formal OPAC workshops or classes expressed interest in attending such formal training sessions. The major reason surveyed nonusers had not yet used the OPAC was that they had not yet attended training sessions on OPAC use. Thus, training sessions would probably be attended by such library patrons.

The importance of online user assistance was emphasized in the comparison of user assistance sought by frequent users and by infrequent or first-time users. The availability of online user assistance might reduce dependence on the library staff by first-time or very infrequent library users. The following suggestions were elicited from focus group interview participants to improve the online assistance capabilities of online public access catalogs:

1. Computer-assisted instruction programs.

2. Dialog modes for patrons based on their experience or frequency of OPAC use.

3. Informative error messages that explain the nature of the error and how to enter the information correctly.

4. Prompts that direct the patron to the next logical step in the ongoing search and/or suggest possible actions that could be taken.

5. User-oriented interface that is like a helpful companion working together with patrons to find library materials rather than working against them.

Relearnability of the online public access catalog was a theme that emerged in focus group interviews with library patrons and staff and is supported by statistics on the frequency of library visits, OPAC use, and use of computer systems other than the computer catalog. Online user assistance such as computer-assisted instruction, directive and suggestive prompts, and multiple-dialog modes might be the most successful means of making sure that online public access catalogs would be easy and painless for library patrons and staff to relearn. Research with the concept of supplantation and online retrieval systems is another promising approach to the problem of relearnability. Improving the relearnability of existing OPACs and ensuring it in future OPACs is a key issue in the development of online public access catalogs.

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APPENDIX A. USER QUESTIONNAIRE RESULTS

Appendixes A and B enumerate the frequency and percentage of users' and nonusers' responses to every survey question. OCLC-aggregate and individual library data are given. The percentages of responses have been rounded off and add up to 100%. Refer to Tables 1 and 2 for the text of user and nonuser questions.

Case Western Reserve University's frequencies and percentages are somewhat different in Appendix A from the figures in Appendix D because all responses were tallied for the Appendix A figures. In Appendix D, the responses of users who did not respond to the first 10 survey questions were deleted from the analysis. No nonuser questionnaires were completed at Case Western. User questions 57-59 and nonuser questions 13-15 were not completed by public library patrons. These are indicated by 0% in rows of response categories.

The following are caveats to interested readers of the user and nonuser data who may consider using the data in the future:

1. Do not compare survey responses between libraries without being thoroughly familiar with the operation of the libraries' OPACs. For example, some OPACs contained a particular feature tested in a survey question, other OPACs did not contain the feature. "Dangerous" questions in this regard are user questions 1-3, 11-38, and 44.

2. Do not compare survey responses between libraries without being thoroughly familiar with the OPAC services libraries provide for OPAC searchers. For example, few libraries surveyed offered printers for hardcopy printout; yet figures are enumerated for user questions about printers. "Dangerous" questions in this regard are user questions 42-45.

3. Do not compare survey responses between libraries without being thoroughly familiar with the reference services libraries provide for OPAC searchers. "Dangerous" questions in this regard are user questions 8, 39-40, 45, 52-53, and nonuser question 1.

4. Do not compare survey responses between libraries without being thoroughly familiar with each library's traditional catalog. For example, one of the libraries studied did not have a traditional catalog. "Dangerous" questions in this regard are user questions 10, 46, 49-50, and nonuser questions 1 and 8.

QUESTION 1

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	1940	24%	590	23%	576	25%	217	33%	387	22%	170	23%	113	23%
b	562	7%	199	8%	154	7%	69	11%	103	6%	37	5%	54	11%
c	1870	23%	549	21%	555	24%	232	36%	371	21%	163	22%	111	23%
d	463	6%	158	6%	119	5%	45	7%	105	6%	36	5%	56	12%
e	1128	14%	463	18%	258	11%	24	4%	272	15%	111	15%	49	10%
f	1821	23%	563	22%	505	22%	43	7%	508	28%	202	27%	51	11%
g	250	3%	73	3%	111	5%	16	2%	37	2%	13	2%	25	5%
h	49	1%	17	1%	15	1%	5	1%	8	0%	4	1%	24	5%
TOTALS	8083	100%	2612	100%	2293	100%	651	100%	1791	100%	736	100%	483	100%

QUESTION 2

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	2355	34%	720	35%	708	36%	228	36%	475	30%	224	35%	123	29%
b	2130	31%	700	34%	590	30%	47	7%	578	36%	215	34%	65	15%
c	1036	15%	324	16%	279	14%	97	15%	236	15%	100	16%	76	18%
d	222	3%	79	4%	43	2%	60	9%	25	2%	15	2%	47	11%
e	810	12%	215	10%	265	13%	71	11%	182	11%	77	12%	43	10%
f	374	5%	30	1%	102	5%	130	21%	110	7%	2	0%	77	18%
TOTALS	6927	100%	2068	100%	1987	100%	633	100%	1606	100%	633	100%	431	100%

QUESTION 3

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	1733	22%	522	21%	509	23%	183	29%	359	20%	160	22%	97	25%
b	668	8%	227	9%	199	9%	95	15%	115	6%	32	4%	57	14%
c	1666	21%	495	20%	478	21%	196	31%	342	19%	155	22%	91	23%
d	656	8%	200	8%	194	9%	87	14%	140	8%	35	5%	58	15%
e	1153	15%	471	19%	232	10%	18	3%	306	17%	126	18%	31	8%
f	1733	22%	538	21%	494	22%	24	4%	485	27%	192	27%	34	9%
g	234	3%	65	3%	106	5%	14	2%	40	2%	9	1%	14	4%
h	55	1%	13	1%	16	1%	8	1%	11	1%	7	1%	13	3%
TOTALS	7898	100%	2531	100%	2228	100%	625	100%	1798	100%	716	100%	395	100%

QUESTION 4

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	777 10%	114 5%	184 8%	30 5%	286 16%	163 22%	43 10%
b	151 2%	15 1%	28 1%	6 1%	70 4%	34 4%	22 5%
c	698 9%	224 10%	143 7%	90 15%	185 10%	56 7%	56 13%
d	1401 18%	267 12%	304 14%	79 13%	508 28%	243 32%	54 13%
e	333 4%	45 2%	98 4%	11 2%	121 7%	58 8%	34 8%
f	1226 16%	482 21%	425 19%	86 14%	175 10%	58 8%	56 13%
g	1617 21%	715 32%	521 24%	108 18%	214 12%	59 8%	59 14%
h	365 5%	99 4%	148 7%	67 11%	43 2%	8 1%	27 6%
i	254 3%	76 3%	85 4%	47 8%	37 2%	9 1%	27 6%
j	190 2%	56 2%	63 3%	25 4%	39 2%	7 1%	14 3%
k	616 8%	156 7%	190 9%	54 9%	153 8%	63 8%	35 8%
TOTALS	7628 100%	2249 100%	2189 100%	601 100%	1831 100%	758 100%	427 100%

QUESTION 5

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	818	19%	190	15%	238	19%	67	21%	255	25%	68	17%	29	18%
b	1295	30%	334	26%	383	31%	125	39%	306	30%	147	37%	51	31%
c	1535	36%	525	41%	455	37%	91	28%	328	32%	136	35%	48	29%
d	603	14%	245	19%	145	12%	40	12%	131	13%	42	11%	36	22%
TOTALS	4251	100%	1294	100%	1221	100%	323	100%	1020	100%	393	100%	164	100%

QUESTION 6

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	2089	49%	541	42%	601	49%	199	61%	524	51%	224	57%	62	39%
b	1398	33%	457	35%	415	34%	84	26%	323	32%	119	30%	48	31%
c	413	10%	130	10%	126	10%	25	8%	104	10%	28	7%	24	15%
d	363	9%	170	13%	79	6%	19	6%	71	7%	24	6%	23	15%
TOTALS	4263	100%	1298	100%	1221	100%	327	100%	1022	100%	395	100%	157	100%

QUESTION 7

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	2134	50%	548	42%	633	52%	152	47%	589	58%	212	54%	71	44%
b	2122	50%	755	58%	586	48%	172	53%	427	42%	182	46%	90	56%
TOTALS	4256	100%	1303	100%	1219	100%	324	100%	1016	100%	394	100%	161	100%

QUESTION 8

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	2034	36%	656	41%	767	45%	137	28%	382	27%	92	19%	82	32%
b	1031	18%	266	17%	358	21%	76	16%	167	12%	164	33%	55	21%
c	1109	20%	106	7%	219	13%	197	41%	532	38%	55	11%	45	17%
d	272	5%	65	4%	62	4%	14	3%	106	8%	25	5%	16	6%
e	1214	21%	490	31%	301	18%	57	12%	207	15%	159	32%	62	24%
TOTALS	5660	100%	1583	100%	1707	100%	481	100%	1394	100%	495	100%	260	100%

QUESTION 9

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	2766	65%	834	64%	825	67%	244	75%	630	61%	233	59%	74	46%
b	1168	27%	363	28%	330	27%	68	21%	298	29%	109	27%	61	38%
c	246	6%	80	6%	50	4%	10	3%	70	7%	36	9%	15	9%
d	100	2%	21	2%	19	2%	3	1%	38	4%	19	5%	11	7%
TOTALS	4280	100%	1298	100%	1224	100%	325	100%	1036	100%	397	100%	161	100%

QUESTION 10

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	2949 69%	876 68%	924 76%	219 68%	680 66%	250 64%	89 55%
b	674 16%	224 17%	178 15%	59 18%	160 15%	53 14%	29 18%
c	327 8%	98 8%	50 4%	16 5%	103 10%	60 15%	19 12%
d	302 7%	94 7%	63 5%	28 9%	90 9%	27 7%	26 16%
TOTALS	4252 100%	1292 100%	1215 100%	322 100%	1033 100%	390 100%	163 100%

QUESTION 11

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
STRONGLY DISAGREE	1175 30%	365 30%	375 32%	97 32%	215 24%	122 33%	12 12%
DISAGREE	1724 44%	492 40%	530 45%	132 44%	429 47%	141 38%	11 11%
NEITHER AGREE NOR DISAGREE	519 13%	168 14%	130 11%	34 11%	139 15%	49 13%	25 25%
AGREE	415 11%	150 12%	100 9%	29 10%	91 10%	45 12%	29 28%
STRONGLY AGREE	114 3%	43 4%	22 2%	8 3%	30 3%	11 3%	25 25%
TOTALS	3947 100%	1219 100%	1157 100%	300 100%	904 100%	367 100%	102 100%

QUESTION 12

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY AGREE	1237	31%	401	33%	338	29%	112	37%	245	27%	141	39%	36	27%
AGREE	1959	49%	592	48%	600	52%	129	43%	468	52%	173	47%	48	36%
NEITHER AGREE NOR DISAGREE	377	10%	125	10%	111	13%	23	8%	90	13%	28	8%	23	17%
DISAGREE	290	7%	92	7%	84	7%	28	9%	69	8%	17	5%	16	12%
STRONGLY DISAGREE	97	2%	21	2%	29	2%	11	4%	27	3%	9	2%	9	7%
TOTALS	3960	100%	1231	100%	1162	100%	303	100%	899	100%	365	100%	132	100%

QUESTION 13

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY DISAGREE	753	19%	203	17%	243	21%	24	13%	200	21%	83	22%	41	41%
DISAGREE	1274	33%	340	28%	420	36%	43	23%	332	35%	139	37%	13	13%
NEITHER AGREE NOR DISAGREE	582	15%	193	16%	157	14%	40	21%	139	15%	53	14%	22	22%
AGREE	894	23%	353	29%	253	22%	43	23%	185	20%	60	16%	14	14%
STRONGLY AGREE	374	10%	127	10%	85	7%	37	20%	89	9%	36	10%	9	9%
TOTALS	3877	100%	1216	100%	1158	100%	187	100%	945	100%	371	100%	99	100%

QUESTION 14

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
STRONGLY AGREE	728 26%	234 27%	304 31%	32 22%	109 17%	49 21%	26 30%
AGREE	987 35%	288 34%	388 40%	41 29%	207 32%	63 28%	16 19%
NEITHER AGREE NOR DISAGREE	715 25%	214 25%	175 18%	51 36%	203 31%	72 31%	21 24%
DISAGREE	269 9%	70 8%	68 7%	11 8%	90 14%	30 13%	4 5%
STRONGLY DISAGREE	143 5%	45 5%	39 4%	8 6%	36 6%	15 7%	19 22%
TOTALS	2842 100%	851 100%	974 100%	143 100%	645 100%	229 100%	86 100%

QUESTION 15

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
STRONGLY DISAGREE	1076 31%	319 30%	384 35%	116 43%	166 22%	91 31%	18 14%
DISAGREE	1332 38%	380 36%	429 39%	98 36%	327 44%	98 33%	4 3%
NEITHER AGREE NOR DISAGREE	635 18%	218 21%	168 15%	32 12%	150 20%	67 23%	23 17%
AGREE	322 9%	107 10%	87 8%	14 5%	83 11%	31 10%	51 39%
STRONGLY AGREE	101 3%	36 3%	21 2%	10 4%	25 3%	9 3%	36 27%
TOTALS	3466 100%	1060 100%	1089 100%	270 100%	751 100%	296 100%	132 100%

QUESTION 16

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY AGREE	623	16%	224	19%	134	11%	40	14%	121	14%	104	28%	22	16%
AGREE	1824	47%	576	50%	583	48%	126	43%	371	42%	168	46%	34	25%
NEITHER AGREE NOR DISAGREE	727	19%	202	17%	215	18%	51	18%	205	23%	54	15%	31	23%
DISAGREE	612	16%	134	12%	223	19%	60	21%	158	18%	37	10%	37	27%
STRONGLY DISAGREE	126	3%	27	2%	50	4%	14	5%	30	3%	5	1%	13	9%
TOTALS	3912	100%	1163	100%	1205	100%	291	100%	885	100%	368	100%	137	100%

QUESTION 17

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY DISAGREE	307	8%	93	8%	82	7%	11	6%	64	7%	57	16%	32	31%
DISAGREE	1190	31%	308	25%	404	35%	50	27%	303	33%	125	34%	27	26%
NEITHER AGREE NOR DISAGREE	749	19%	247	20%	215	18%	48	26%	174	19%	65	18%	15	15%
AGREE	1160	30%	416	34%	341	29%	52	28%	264	28%	87	24%	15	15%
STRONGLY AGREE	452	12%	146	12%	126	11%	26	14%	125	13%	29	8%	13	13%
TOTALS	3858	100%	1210	100%	1168	100%	187	100%	930	100%	363	100%	102	100%

QUESTION 18

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
STRONGLY AGREE	456 12%	122 10%	114 10%	31 12%	107 12%	82 22%	18 14%
AGREE	1674 43%	427 36%	583 50%	114 44%	385 42%	165 45%	19 15%
NEITHER AGREE NOR DISAGREE	744 19%	256 22%	224 19%	46 18%	156 17%	62 17%	31 24%
DISAGREE	785 20%	291 25%	190 16%	59 23%	196 22%	50 14%	42 33%
STRONGLY DISAGREE	227 6%	89 8%	53 5%	10 4%	66 7%	9 2%	19 15%
TOTALS	3887 100%	1185 100%	1164 100%	260 100%	910 100%	368 100%	129 100%

QUESTION 19

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
STRONGLY DISAGREE	148 4%	51 5%	39 4%	9 4%	19 3%	30 10%	23 21%
DISAGREE	706 21%	174 16%	280 27%	51 25%	142 19%	59 19%	37 34%
NEITHER AGREE NOR DISAGREE	1011 30%	289 27%	307 29%	68 33%	266 36%	81 26%	27 25%
AGREE	1238 37%	454 42%	349 34%	63 31%	264 36%	108 35%	21 19%
STRONGLY AGREE	273 8%	113 10%	66 6%	12 6%	51 7%	31 10%	2 2%
TOTALS	3376 100%	1081 100%	1041 100%	203 100%	742 100%	309 100%	110 100%

QUESTION 20

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY AGREE	245	7%	69	7%	78	8%	19	9%	42	6%	37	13%	24	20%
AGREE	1090	33%	277	26%	415	41%	78	37%	219	31%	101	35%	34	29%
NEITHER AGREE NOR DISAGREE	1040	32%	294	28%	321	31%	69	33%	266	37%	90	31%	24	20%
DISAGREE	722	22%	307	29%	171	17%	41	20%	150	21%	53	18%	32	27%
STRONGLY DISAGREE	186	6%	101	10%	35	3%	2	1%	38	5%	10	3%	5	4%
TOTALS	3283	100%	1048	100%	1020	100%	209	100%	715	100%	291	100%	119	100%

QUESTION 21

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY DISAGREE	875	22%	322	26%	256	21%	41	13%	146	15%	110	29%	22	16%
DISAGREE	2102	52%	665	54%	624	52%	148	48%	480	50%	185	49%	31	22%
NEITHER AGREE NOR DISAGREE	451	11%	129	11%	118	10%	41	13%	130	14%	33	9%	20	14%
AGREE	509	13%	85	7%	165	14%	65	21%	158	17%	36	10%	47	34%
STRONGLY AGREE	132	3%	27	2%	41	3%	14	5%	39	4%	11	3%	19	14%
TOTALS	4069	100%	1228	100%	1204	100%	309	100%	953	100%	375	100%	139	100%

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QUESTION 22

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY AGREE	542	14%	224	19%	154	13%	37	12%	84	9%	43	14%	39	30%
AGREE	1936	50%	652	54%	668	57%	149	50%	358	39%	109	35%	49	37%
NEITHER AGREE NOR DISAGREE	720	18%	188	16%	189	16%	61	20%	181	20%	101	33%	24	18%
DISAGREE	569	15%	121	10%	140	12%	37	12%	227	25%	44	14%	17	13%
STRONGLY DISAGREE	138	4%	19	2%	31	3%	14	5%	63	7%	11	4%	3	2%
TOTALS	3905	100%	1204	100%	1182	100%	298	100%	913	100%	308	100%	132	100%

QUESTION 23

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY DISAGREE	158	4%	14	1%	66	5%	21	7%	51	5%	5	2%	23	17%
DISAGREE	639	16%	116	10%	200	17%	69	23%	218	23%	35	10%	38	28%
NEITHER AGREE NOR DISAGREE	704	18%	180	15%	198	16%	65	21%	187	20%	74	20%	25	19%
AGREE	2017	50%	701	58%	602	50%	123	40%	405	43%	185	51%	40	30%
STRONGLY AGREE	503	13%	194	16%	134	11%	27	9%	88	9%	63	17%	8	6%
TOTALS	4021	100%	1205	100%	1200	100%	305	100%	949	100%	362	100%	134	100%

QUESTION 24

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
STRONGLY AGREE	122 3%	24 2%	49 4%	12 5%	29 3%	8 2%	10 9%
AGREE	442 12%	85 7%	152 13%	50 20%	126 14%	29 9%	14 13%
NEITHER AGREE NOR DISAGREE	504 13%	138 12%	143 12%	54 21%	120 13%	49 14%	25 23%
DISAGREE	1883 49%	599 51%	560 48%	107 42%	466 52%	151 45%	41 38%
STRONGLY DISAGREE	885 23%	332 28%	260 22%	31 12%	161 18%	101 30%	18 17%
TOTALS	3836 100%	1178 100%	1164 100%	254 100%	902 100%	338 100%	108 100%

QUESTION 25

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
STRONGLY DISAGREE	207 6%	74 7%	58 5%	9 3%	52 6%	14 6%	31 25%
DISAGREE	748 22%	260 26%	205 19%	52 20%	191 22%	40 16%	44 36%
NEITHER AGREE NOR DISAGREE	1001 29%	324 32%	305 29%	57 22%	211 25%	104 42%	21 17%
AGREE	1161 34%	265 26%	405 38%	99 39%	321 37%	71 29%	22 18%
STRONGLY AGREE	309 9%	79 8%	86 8%	42 15%	83 10%	19 8%	5 4%
TOTALS	3426 100%	1002 100%	1059 100%	259 100%	858 100%	248 100%	123 100%

QUESTION 26

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY AGREE	140	5%	55	6%	29	3%	6	3%	39	6%	11	4%	14	17%
AGREE	452	15%	169	18%	114	14%	27	14%	113	16%	29	11%	11	13%
NEITHER AGREE NOR DISAGREE	1023	35%	327	34%	318	38%	61	32%	245	35%	72	28%	23	27%
DISAGREE	1006	34%	295	31%	289	34%	69	37%	253	36%	100	38%	21	25%
STRONGLY DISAGREE	333	11%	112	12%	92	11%	26	14%	54	8%	49	19%	15	18%
TOTALS	2954	100%	958	100%	842	100%	189	100%	704	100%	261	100%	84	100%

QUESTION 27

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY DISAGREE	77	2%	19	2%	29	2%	3	1%	19	2%	7	2%	25	19%
DISAGREE	648	17%	145	12%	227	19%	65	23%	175	19%	35	10%	32	25%
NEITHER AGREE NOR DISAGREE	764	20%	237	20%	224	19%	60	21%	197	22%	45	13%	33	25%
AGREE	1985	51%	621	53%	604	51%	135	47%	429	48%	195	55%	35	27%
STRONGLY AGREE	419	11%	153	13%	89	8%	24	9%	83	9%	73	20%	5	4%
TOTALS	3893	100%	1175	100%	1173	100%	287	100%	903	100%	355	100%	130	100%

QUESTION 28

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY AGREE	111	3%	18	2%	25	2%	4	1%	57	6%	7	2%	18	14%
AGREE	452	12%	83	7%	142	12%	40	15%	150	17%	37	10%	25	19%
NEITHER AGREE NOR DISAGREE	556	14%	149	13%	183	16%	56	20%	128	14%	43	11%	25	19%
DISAGREE	2154	55%	693	58%	658	57%	143	52%	473	52%	187	52%	45	35%
STRONGLY DISAGREE	617	16%	243	20%	150	13%	32	12%	100	11%	92	25%	17	13%
TOTALS	3890	100%	1186	100%	1158	100%	275	100%	908	100%	363	100%	130	100%

QUESTION 29

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY DISAGREE	70	2%	13	1%	22	2%	5	2%	24	3%	5	2%	45	35%
DISAGREE	364	9%	66	6%	140	12%	36	12%	94	10%	29	8%	47	37%
NEITHER AGREE NOR DISAGREE	474	12%	121	10%	159	14%	40	14%	121	13%	33	9%	18	14%
AGREE	2346	60%	745	63%	585	59%	163	56%	541	60%	212	59%	15	12%
STRONGLY AGREE	645	17%	240	20%	157	13%	47	15%	123	14%	78	22%	2	2%
TOTALS	3899	100%	1185	100%	1163	100%	291	100%	903	100%	357	100%	127	100%

QUESTION 30

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY AGREE	74	2%	21	2%	16	1%	4	1%	26	3%	7	2%	18	15%
AGREE	407	10%	93	8%	126	11%	44	16%	116	13%	28	8%	18	15%
NEITHER AGREE NOR DISAGREE	604	16%	164	14%	204	18%	48	17%	132	15%	56	16%	24	20%
DISAGREE	2150	55%	690	58%	647	56%	141	50%	496	55%	176	51%	42	35%
STRONGLY DISAGREE	649	17%	225	19%	164	14%	44	16%	139	15%	77	22%	18	15%
TOTALS	3884	100%	1193	100%	1157	100%	281	100%	909	100%	344	100%	120	100%

QUESTION 31

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY AGREE	173	5%	64	6%	53	5%	7	3%	42	5%	7	2%	29	25%
AGREE	568	17%	225	20%	171	17%	45	21%	172	20%	55	15%	29	25%
NEITHER AGREE NOR DISAGREE	583	19%	175	15%	249	25%	52	24%	168	20%	39	11%	16	14%
DISAGREE	1595	45%	505	45%	431	44%	89	41%	385	45%	185	51%	30	26%
STRONGLY DISAGREE	434	12%	161	14%	81	8%	23	11%	94	11%	75	21%	13	11%
TOTALS	3553	100%	1130	100%	985	100%	216	100%	961	100%	361	100%	117	100%

QUESTION 32

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY AGREE	145	4%	37	3%	43	4%	10	3%	48	5%	7	5%	21	17%
AGREE	701	18%	206	17%	181	15%	38	13%	251	27%	25	16%	15	12%
NEITHER AGREE NOR DISAGREE	583	15%	163	13%	183	15%	45	15%	134	14%	58	38%	25	20%
DISAGREE	1722	45%	587	48%	578	49%	137	47%	373	40%	47	31%	45	36%
STRONGLY DISAGREE	647	17%	232	19%	200	17%	63	22%	136	14%	16	10%	20	16%
TOTALS	3798	100%	1225	100%	1185	100%	293	100%	942	100%	153	100%	126	100%

QUESTION 33

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY DISAGREE	248	7%	80	7%	70	6%	17	7%	69	8%	12	4%	18	16%
DISAGREE	1099	29%	357	31%	341	30%	63	25%	270	31%	68	21%	23	20%
NEITHER AGREE NOR DISAGREE	1064	28%	342	30%	301	27%	91	36%	244	28%	86	26%	28	24%
AGREE	1111	30%	306	27%	362	32%	68	27%	257	29%	118	36%	40	34%
STRONGLY AGREE	226	6%	67	6%	56	5%	16	6%	43	5%	44	13%	7	6%
TOTALS	3748	100%	1152	100%	1130	100%	255	100%	883	100%	328	100%	116	100%

QUESTION 34

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
STRONGLY AGREE	469 12%	133 11%	121 10%	30 10%	111 12%	74 20%	28 23%
AGREE	2300 57%	670 55%	732 62%	142 49%	534 57%	222 61%	46 38%
NEITHER AGREE NOR DISAGREE	693 17%	222 18%	207 17%	70 24%	158 17%	36 10%	22 18%
DISAGREE	432 11%	137 11%	115 10%	40 14%	114 12%	26 7%	21 17%
STRONGLY DISAGREE	109 3%	53 4%	13 1%	9 3%	28 3%	6 2%	5 4%
TOTALS	4003 100%	1215 100%	1188 100%	291 100%	945 100%	364 100%	122 100%

QUESTION 35

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
STRONGLY DISAGREE	547 14%	161 13%	163 15%	44 15%	107 12%	72 21%	24 20%
DISAGREE	2038 53%	638 53%	625 56%	129 44%	454 51%	192 55%	14 11%
NEITHER AGREE NOR DISAGREE	932 24%	307 26%	262 24%	78 27%	224 25%	61 18%	32 26%
AGREE	263 7%	81 7%	49 4%	33 11%	86 10%	14 4%	37 30%
STRONGLY AGREE	68 2%	16 1%	11 1%	7 2%	27 3%	7 2%	16 13%
TOTALS	3848 100%	1203 100%	1110 100%	291 100%	898 100%	346 100%	123 100%

QUESTION 36

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
STRONGLY AGREE	142 4%	30 3%	23 2%	9 3%	58 6%	22 6%	22 18%
AGREE	625 16%	208 18%	152 13%	40 15%	177 19%	48 13%	22 18%
NEITHER AGREE NOR DISAGREE	866 22%	327 28%	254 22%	61 22%	157 17%	67 18%	24 20%
DISAGREE	1889 49%	523 45%	609 52%	141 51%	443 48%	173 47%	44 37%
STRONGLY DISAGREE	369 9%	86 7%	124 11%	23 8%	81 9%	55 15%	8 7%
TOTALS	3891 100%	1174 100%	1162 100%	274 100%	916 100%	365 100%	120 100%

QUESTION 37

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
STRONGLY DISAGREE	343 9%	103 10%	126 11%	15 6%	57 7%	42 14%	16 13%
DISAGREE	1499 42%	389 36%	593 52%	113 45%	293 34%	111 38%	30 25%
NEITHER AGREE NOR DISAGREE	771 21%	259 24%	205 18%	60 24%	187 22%	60 21%	28 24%
AGREE	835 23%	281 26%	182 16%	57 23%	252 30%	63 22%	37 31%
STRONGLY AGREE	164 5%	48 4%	31 3%	7 3%	62 7%	16 5%	8 7%
TOTALS	3612 100%	1080 100%	1137 100%	252 100%	851 100%	292 100%	119 100%

QUESTION 38

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC. SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
STRONGLY AGREE	333 8%	45 4%	28 2%	41 14%	192 20%	27 7%	45 36%
AGREE	742 19%	188 15%	133 11%	76 26%	276 29%	69 19%	23 19%
NEITHER AGREE NOR DISAGREE	615 15%	192 16%	174 15%	39 13%	145 15%	65 18%	26 21%
DISAGREE	1771 44%	619 51%	633 54%	102 35%	263 28%	154 43%	23 19%
STRONGLY DISAGREE	530 13%	180 15%	206 18%	34 12%	65 7%	45 13%	7 6%
TOTALS	3991 100%	1224 100%	1174 100%	292 100%	941 100%	360 100%	124 100%

QUESTION 39

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
STRONGLY DISAGREE	231 6%	67 6%	34 3%	13 5%	104 12%	13 4%	21 19%
DISAGREE	617 16%	221 19%	107 9%	60 22%	192 22%	37 11%	36 32%
NEITHER AGREE NOR DISAGREE	558 15%	181 16%	97 8%	42 15%	164 19%	74 22%	23 20%
AGREE	2018 53%	600 52%	731 63%	145 52%	377 43%	165 50%	22 19%
STRONGLY AGREE	398 10%	96 8%	197 17%	18 6%	47 5%	40 12%	11 10%
TOTALS	3822 100%	1165 100%	1166 100%	278 100%	884 100%	329 100%	113 100%

QUESTION 40

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY AGREE	125	3%	35	3%	28	2%	3	1%	48	6%	11	4%	17	16%
AGREE	357	10%	111	10%	68	6%	21	8%	137	16%	20	6%	14	13%
NEITHER AGREE NOR DISAGREE	598	16%	195	17%	98	8%	54	21%	177	21%	74	24%	23	21%
DISAGREE	1884	50%	598	52%	624	54%	135	52%	371	44%	156	50%	43	39%
STRONGLY DISAGREE	771	21%	219	19%	339	29%	48	18%	113	13%	52	17%	12	11%
TOTALS	3735	100%	1158	100%	1157	100%	261	100%	846	100%	313	100%	109	100%

QUESTION 41

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY DISAGREE	1035	30%	186	19%	279	28%	133	48%	339	38%	98	34%	14	15%
DISAGREE	1473	43%	403	41%	454	45%	102	37%	388	44%	125	43%	7	7%
NEITHER AGREE NOR DISAGREE	604	18%	249	25%	183	18%	25	9%	100	11%	47	16%	23	24%
AGREE	249	7%	105	11%	76	8%	9	3%	41	5%	18	6%	27	28%
STRONGLY AGREE	85	2%	36	4%	18	2%	6	2%	23	3%	2	1%	24	25%
TOTALS	3446	100%	979	100%	1010	100%	275	100%	891	100%	291	100%	95	100%

QUESTION 42

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
STRONGLY AGREE	355	9%	110	9%	17	2%	24	9%	137	15%	67	19%	15	13%
AGREE	784	20%	318	26%	53	5%	58	21%	209	23%	146	41%	18	16%
NEITHER AGREE NOR DISAGREE	707	18%	268	22%	129	11%	65	24%	183	20%	62	17%	24	21%
DISAGREE	1548	40%	438	36%	631	56%	102	38%	309	34%	68	19%	33	29%
STRONGLY DISAGREE	493	13%	83	7%	302	27%	23	8%	71	8%	14	4%	24	21%
TOTALS	3887	100%	1217	100%	1132	100%	272	100%	909	100%	357	100%	114	100%

QUESTION 43 YES

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	497 4%	57 2%	172 5%	62 7%	190 7%	26 3%	19 5%
b	304 3%	92 3%	86 3%	29 3%	67 3%	30 3%	28 8%
c	3720 33%	1116 32%	1090 34%	278 34%	898 34%	338 35%	112 31%
d	341 3%	129 4%	97 3%	34 4%	51 2%	30 3%	25 7%
e	2883 26%	963 28%	862 27%	179 22%	603 23%	276 28%	68 19%
f	504 5%	217 6%	109 3%	43 5%	104 4%	31 3%	31 9%
g	363 3%	84 2%	116 4%	34 4%	107 4%	22 2%	32 9%
h	2505 23%	829 24%	677 21%	170 21%	613 23%	216 22%	42 12%
TOTALS	11,117 100%	3487 100%	3209 100%	629 100%	2623 100%	969 100%	357 100%

QUESTION 43 NO

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	3645 17%	1222 19%	1028 17%	252 15%	821 16%	322 18%	103 16%
b	3842 18%	1176 18%	1111 18%	285 18%	934 18%	336 18%	104 16%
c	413 2%	147 2%	107 2%	37 2%	98 2%	24 1%	20 3%
d	3795 18%	1138 18%	1098 18%	279 17%	945 18%	335 18%	104 16%
e	1238 6%	302 5%	333 5%	135 8%	390 8%	78 4%	60 9%
f	3622 17%	1048 16%	1083 18%	271 17%	888 17%	332 18%	98 15%
g	3750 18%	1182 18%	1070 17%	279 17%	860 17%	339 19%	98 15%
h	923 4%	217 3%	354 6%	89 5%	208 4%	55 3%	70 11%
TOTALS	21,228 100%	6432 100%	6184 100%	1627 100%	5164 100%	1821 100%	657 100%

QUESTION 44

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	1265	9%	246	6%	329	9%	119	11%	503	14%	68	6%	43	10%
b	866	6%	247	6%	208	5%	81	8%	225	6%	105	9%	32	7%
c	1159	8%	350	8%	309	8%	103	10%	298	9%	99	9%	56	12%
d	614	4%	262	6%	171	4%	53	5%	100	3%	28	2%	22	5%
e	377	3%	166	4%	141	4%	22	2%	36	1%	12	1%	21	5%
f	765	6%	297	7%	274	7%	69	6%	94	3%	31	3%	30	7%
g	470	3%	183	4%	99	3%	25	2%	125	4%	38	3%	9	2%
h	1718	12%	661	16%	465	12%	78	7%	354	10%	160	14%	31	7%
i	702	5%	266	6%	201	5%	48	4%	125	4%	62	5%	12	3%
j	283	2%	87	2%	67	2%	40	4%	69	2%	20	2%	14	3%
k	1277	9%	428	10%	384	10%	85	8%	279	8%	91	8%	45	10%
l	1564	11%	535	13%	465	12%	120	11%	315	9%	129	11%	35	8%
m	1490	11%	319	7%	247	6%	137	13%	613	18%	174	15%	58	13%
n	1061	8%	149	3%	375	10%	90	8%	327	9%	120	10%	40	9%
o	205	1%	52	1%	91	2%	9	1%	33	1%	20	2%	2	0%
TOTALS	13,816	100%	4258	100%	3826	100%	1079	100%	3496	100%	1157	100%	450	100%

QUESTION 45

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	2091 23%	772 27%	244 10%	227 29%	588 25%	260 40%	75 25%
b	1199 13%	482 17%	307 13%	103 13%	244 10%	63 10%	31 11%
c	1432 16%	552 19%	524 22%	107 14%	174 7%	75 11%	44 15%
d	1333 15%	284 10%	428 18%	105 13%	452 19%	64 10%	48 16%
e	995 11%	267 9%	222 9%	64 8%	379 16%	63 10%	26 9%
f	337 4%	78 3%	97 4%	40 5%	108 5%	14 2%	17 6%
g	580 6%	142 5%	145 6%	68 9%	198 8%	27 4%	24 8%
h	490 5%	138 5%	123 5%	48 6%	149 6%	32 5%	11 4%
i	572 6%	150 5%	247 11%	22 3%	93 4%	60 9%	19 6%
TOTALS	9029 100%	2865 100%	2337 100%	784 100%	2385 100%	658 100%	295 100%

QUESTION 46

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	868	9%	308	9%	285	10%	141	16%	93	4%	41	5%	47	13%
b	888	9%	222	6%	228	8%	46	5%	290	13%	102	13%	26	7%
c	1124	11%	410	12%	324	12%	115	13%	209	9%	66	9%	44	12%
d	1615	16%	644	19%	360	13%	149	17%	357	15%	105	14%	51	14%
e	602	6%	155	5%	185	7%	27	3%	181	8%	54	7%	17	5%
f	293	3%	94	3%	90	3%	39	5%	65	3%	5	1%	15	4%
g	491	5%	131	4%	125	4%	23	3%	156	7%	56	7%	11	3%
h	1046	10%	406	12%	270	10%	86	10%	204	9%	80	11%	30	8%
i	826	8%	208	6%	212	8%	36	4%	277	12%	93	12%	18	5%
j	618	6%	178	5%	230	8%	65	8%	120	5%	25	3%	36	10%
k	1128	11%	534	16%	251	9%	97	11%	192	8%	54	7%	54	14%
l	470	5%	89	3%	184	7%	20	2%	119	5%	58	8%	3	1%
m	176	2%	50	1%	50	2%	12	1%	47	2%	17	2%	21	6%
TOTALS	10,145	100%	3429	100%	2794	100%	856	100%	2310	100%	756	100%	373	100%

QUESTION 47 HAS BEEN PURPOSELY OMITTED.

QUESTION 48

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	1004	24%	474	37%	356	29%	111	35%	46	5%	17	4%	46	39%
b	1823	43%	518	41%	551	46%	160	50%	413	40%	181	48%	56	48%
c	819	19%	167	13%	179	15%	30	9%	321	31%	122	32%	8	7%
d	321	8%	74	6%	78	6%	8	3%	128	13%	35	9%	4	3%
e	58	1%	13	1%	20	2%	2	1%	18	2%	5	1%	2	2%
f	181	4%	33	3%	26	2%	6	2%	94	9%	20	5%	1	1%
TOTALS	4206	100%	1279	100%	1210	100%	317	100%	1020	100%	380	100%	117	100%

QUESTION 49

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	942 22%	252 20%	255 21%	14 4%	303 30%	118 31%	33 27%
b	1583 38%	582 45%	488 40%	72 23%	291 29%	150 40%	29 24%
c	1053 25%	348 27%	340 28%	128 40%	172 17%	65 17%	34 28%
d	227 5%	50 4%	78 6%	40 13%	40 4%	19 5%	9 7%
e	413 10%	54 4%	54 4%	63 20%	215 21%	27 7%	15 13%
TOTALS	4218 100%	1286 100%	1215 100%	317 100%	1021 100%	379 100%	120 100%

QUESTION 50

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	463 11%	109 9%	79 7%	87 28%	163 16%	25 7%	34 29%
b	822 20%	272 21%	164 14%	109 35%	244 25%	33 9%	35 29%
c	1335 32%	527 41%	385 32%	86 27%	255 26%	82 23%	34 29%
d	971 23%	261 20%	401 33%	25 8%	174 18%	110 31%	13 11%
e	564 14%	108 8%	181 15%	8 3%	157 16%	110 31%	3 3%
TOTALS	4155 100%	1277 100%	1210 100%	315 100%	993 100%	360 100%	119 100%

QUESTION 51

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	565 14%	136 11%	154 13%	46 15%	175 17%	54 14%	33 27%
b	661 16%	215 17%	224 19%	46 15%	124 12%	52 14%	30 25%
c	541 13%	167 13%	179 15%	46 15%	115 11%	34 9%	16 13%
d	476 11%	180 14%	135 11%	37 12%	86 9%	36 10%	7 6%
e	390 9%	115 9%	116 10%	39 12%	82 8%	38 10%	10 8%
f	1543 37%	464 36%	395 33%	101 32%	424 42%	159 43%	24 20%
TOTALS	4176 100%	1277 100%	1203 100%	315 100%	1006 100%	373 100%	120 100%

QUESTION 52

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	2468 59%	862 68%	586 49%	125 40%	687 68%	208 56%	58 49%
b	465 11%	92 7%	289 24%	33 11%	35 3%	16 4%	16 13%
c	199 5%	54 4%	27 2%	5 2%	53 5%	60 16%	11 9%
d	192 5%	27 2%	121 10%	31 10%	9 1%	4 1%	4 3%
e	372 9%	116 9%	99 8%	20 6%	78 8%	59 16%	5 4%
f	456 11%	116 9%	74 6%	97 31%	144 14%	25 7%	25 21%
TOTALS	4152 100%	1267 100%	1196 100%	311 100%	1006 100%	372 100%	119 100%

253

QUESTION 53

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	717	11%	233	12%	214	10%	25	5%	180	13%	65	12%	20	8%
b	2496	39%	950	51%	831	40%	143	30%	411	29%	161	30%	75	29%
c	722	11%	208	11%	245	12%	45	9%	106	7%	124	23%	43	17%
d	1429	22%	224	12%	368	18%	200	41%	556	39%	81	15%	44	17%
e	282	4%	27	1%	207	10%	34	7%	10	1%	4	1%	17	7%
f	14	0%	2	0%	6	0%	2	0%	3	0%	1	0%	5	2%
g	723	11%	226	12%	212	10%	35	7%	155	11%	95	18%	54	21%
TOTALS	6389	100%	1870	100%	2083	100%	484	100%	1421	100%	531	100%	258	100%

QUESTION 54

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	78	2%	6	0%	5	0%	0	0%	54	5%	13	3%	2	2%
b	794	19%	299	23%	178	15%	16	5%	240	24%	61	16%	28	23%
c	1508	36%	573	45%	579	48%	99	31%	156	15%	101	27%	42	35%
d	1177	28%	259	20%	340	28%	132	42%	310	31%	136	36%	27	22%
e	413	10%	104	8%	76	6%	43	14%	141	14%	49	13%	14	12%
f	141	3%	21	2%	29	2%	22	7%	60	6%	9	2%	1	1%
g	59	1%	12	1%	5	0%	5	2%	33	3%	4	1%	5	4%
h	30	1%	5	0%	2	0%	0	0%	21	2%	2	1%	2	2%
TOTALS	4200	100%	1279	100%	1214	100%	317	100%	1015	100%	375	100%	121	100%

QUESTION 55

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	1739	42%	580	46%	445	37%	118	38%	420	42%	176	47%	46	37%
b	2403	58%	682	54%	752	63%	195	62%	576	58%	198	53%	77	63%
TOTALS	4142	100%	1262	100%	1197	100%	313	100%	996	100%	374	100%	123	100%

QUESTION 56

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	30 1%	6 0%	2 0%	2 1%	14 1%	6 2%	6 5%
b	425 10%	35 3%	27 2%	3 1%	305 30%	55 15%	2 2%
c	1800 43%	688 54%	648 54%	85 27%	259 26%	120 32%	50 40%
d	1927 46%	546 43%	528 44%	227 72%	430 43%	196 52%	67 54%
TOTALS	4182 100%	1275 100%	1205 100%	317 100%	1008 100%	377 100%	125 100%

QUESTION 57

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	740 28%	382 32%	274 23%	84 28%	0 0%	0 0%	25 21%
b	238 9%	63 5%	149 13%	26 9%	0 0%	0 0%	8 7%
c	438 16%	219 18%	154 13%	65 22%	0 0%	0 0%	9 7%
d	385 14%	203 17%	148 13%	34 11%	0 0%	0 0%	12 10%
e	175 7%	68 6%	73 6%	34 11%	0 0%	0 0%	3 2%
f	301 11%	91 8%	188 16%	22 7%	0 0%	0 0%	42 35%
g	172 6%	43 4%	118 10%	11 4%	0 0%	0 0%	2 2%
h	47 2%	37 3%	10 1%	0 0%	0 0%	0 0%	6 5%
i	68 3%	34 3%	29 2%	5 2%	0 0%	0 0%	1 1%
j	107 4%	61 5%	29 2%	17 6%	0 0%	0 0%	13 11%
TOTALS	2671 100%	1201 100%	1172 100%	298 100%	0 100%	0 100%	121 100%

QUESTION 58

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	1973	60%	916	63%	885	61%	172	43%	0	0%	0	0%	88	54%
b	288	9%	98	7%	134	9%	56	14%	0	0%	0	0%	20	12%
c	1038	31%	443	30%	421	29%	174	43%	0	0%	0	0%	54	33%
TOTALS	3299	100%	1457	100%	1440	100%	402	100%	0	100%	0	100%	162	100%

QUESTION 59

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	567	22%	302	26%	235	21%	30	10%	0	0%	0	0%	32	27%
b	868	33%	365	31%	442	39%	61	21%	0	0%	0	0%	22	18%
c	465	18%	200	17%	174	15%	89	31%	0	0%	0	0%	15	13%
d	254	10%	87	7%	121	11%	46	16%	0	0%	0	0%	3	2%
e	68	3%	38	3%	28	2%	2	1%	0	0%	0	0%	12	10%
f	121	5%	48	4%	38	3%	35	12%	0	0%	0	0%	10	8%
g	93	4%	56	5%	32	3%	5	2%	0	0%	0	0%	11	9%
h	161	6%	86	7%	56	5%	19	7%	0	0%	0	0%	15	13%
TOTALS	2595	100%	1182	100%	1126	100%	287	100%	0	100%	0	100%	120	100%

APPENDIX B. NONUSER QUESTIONNAIRE RESULTS

Appendixes A and B enumerate the frequency and percentage of users' and nonusers' responses to every survey question. OCLC-aggregate and individual library data are given. The percentages of responses have been rounded off and add up to 100%. Refer to Tables 1 and 2 for the text of user and nonuser questions.

Case Western Reserve University's frequencies and percentages are somewhat different in Appendix A from the figures in Appendix D because all responses were tallied for the Appendix A figures. In Appendix D, the responses of users who did not respond to the first 10 survey questions were deleted from the analysis. No nonuser questionnaires were completed at Case Western. User questions 57-59 and nonuser questions 13-15 were not completed by public library patrons. These are indicated by 0% in rows of response categories.

The following are caveats to interested readers of the user and nonuser data who may consider using the data in the future:

1. Do not compare survey responses between libraries without being thoroughly familiar with the operation of the libraries' OPACs. For example, some OPACs contained a particular feature tested in a survey question; other OPACs did not contain the feature. "Dangerous" questions in this regard are user questions 1-3, 11-38, and 44.

2. Do not compare survey responses between libraries without being thoroughly familiar with the OPAC services libraries provide for OPAC searchers. For example, few libraries surveyed offered printers for hardcopy printout; yet figures are enumerated for user questions about printers. "Dangerous" questions in this regard are user questions 42-45.

3. Do not compare survey responses between libraries without being thoroughly familiar with the reference services libraries provide for OPAC searchers. "Dangerous" questions in this regard are user questions 8, 39-40, 45, 52-53, and nonuser question 1.

4. Do not compare survey responses between libraries without being thoroughly familiar with each library's traditional catalog. For example, one of the libraries studied did not have a traditional catalog. "Dangerous" questions in this regard are user questions 10, 46, 49-50, and nonuser questions 1 and 8.

QUESTION 1

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	128	4%	30	5%	44	7%	21	2%	16	2%	17	5%	0	0%
b	458	13%	53	8%	38	6%	234	19%	109	15%	24	7%	0	0%
c	279	8%	28	4%	30	5%	163	13%	43	6%	15	4%	0	0%
d	596	17%	112	17%	121	19%	171	14%	142	20%	50	15%	0	0%
e	690	19%	129	20%	131	20%	257	21%	122	17%	51	15%	0	0%
f	134	4%	29	4%	31	5%	43	3%	23	3%	8	2%	0	0%
g	58	2%	14	2%	2	0%	9	1%	19	3%	14	4%	0	0%
h	542	15%	91	14%	145	22%	148	12%	94	13%	64	19%	0	0%
i	245	7%	57	9%	46	7%	74	6%	54	8%	14	4%	0	0%
j	65	2%	20	3%	8	1%	20	2%	10	1%	7	2%	0	0%
k	388	11%	87	13%	56	9%	100	8%	75	11%	70	21%	0	0%
TOTALS	3583	100%	650	100%	652	100%	1240	100%	707	100%	334	100%	0	100%

QUESTION 2

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	62 4%	7 3%	13 5%	28 6%	9 3%	5 4%	0 0%
b	60 4%	13 5%	9 3%	26 5%	7 2%	5 4%	0 0%
c	114 8%	24 9%	32 12%	42 9%	11 4%	5 4%	0 0%
d	303 21%	47 17%	79 29%	116 24%	40 14%	21 15%	0 0%
e	346 24%	57 21%	66 24%	126 26%	67 24%	30 22%	0 0%
f	573 39%	128 46%	78 28%	148 30%	147 52%	72 52%	0 0%
TOTALS	1458 100%	276 100%	277 100%	486 100%	281 100%	138 100%	0 100%

QUESTION 3

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	12 1%	0 0%	3 1%	6 1%	1 0%	2 1%	0 0%
b	261 18%	48 17%	61 22%	93 19%	37 13%	22 16%	0 0%
c	703 48%	128 45%	149 53%	251 51%	115 41%	60 43%	0 0%
d	500 34%	106 38%	67 24%	142 29%	130 46%	55 40%	0 0%
TOTALS	1476 100%	282 100%	280 100%	492 100%	283 100%	139 100%	0 100%

QUESTION 4

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	647 45%	90 34%	110 40%	238 49%	145 54%	64 48%	0 0%
b	632 44%	146 56%	133 48%	205 43%	99 37%	49 37%	0 0%
c	119 8%	24 9%	27 10%	33 7%	19 7%	16 12%	0 0%
d	24 2%	2 1%	6 2%	5 1%	7 3%	4 3%	0 0%
TOTALS	1422 100%	262 100%	276 100%	481 100%	270 100%	133 100%	0 100%

QUESTION 5

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	542 37%	76 28%	77 28%	197 40%	143 52%	49 36%	0 0%
b	551 38%	106 39%	121 44%	187 38%	86 31%	51 38%	0 0%
c	241 17%	57 21%	61 22%	74 15%	34 12%	15 11%	0 0%
d	120 8%	34 12%	19 7%	33 7%	14 5%	20 15%	0 0%
TOTALS	1454 100%	273 100%	278 100%	491 100%	277 100%	135 100%	0 100%

QUESTION 6

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	468	35%	69	27%	95	35%	161	35%	98	40%	45	36%	0	0%
b	229	17%	53	21%	55	20%	66	15%	34	14%	21	17%	0	0%
c	43	3%	8	3%	8	3%	10	2%	9	4%	8	6%	0	0%
d	612	45%	124	49%	113	42%	218	48%	105	43%	52	41%	0	0%
TOTALS	1352	100%	254	100%	271	100%	455	100%	246	100%	126	100%	0	100%

QUESTION 7

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	393	27%	79	28%	126	45%	177	36%	5	2%	6	4%	0	0%
b	466	32%	102	37%	92	33%	150	30%	89	32%	33	24%	0	0%
c	262	18%	41	15%	26	9%	67	14%	90	32%	38	28%	0	0%
d	163	11%	32	11%	21	8%	42	8%	43	15%	25	18%	0	0%
e	48	3%	7	3%	4	1%	23	5%	8	3%	6	4%	0	0%
f	136	9%	18	6%	10	4%	37	7%	43	15%	28	21%	0	0%
TOTALS	1468	100%	279	100%	279	100%	496	100%	278	100%	136	100%	0	100%

QUESTION 8

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	130 9%	28 10%	7 3%	55 11%	33 12%	7 6%	0 0%
b	246 17%	50 18%	23 8%	114 23%	48 17%	11 9%	0 0%
c	455 31%	99 36%	76 27%	173 35%	85 31%	22 17%	0 0%
d	370 25%	68 25%	118 43%	94 19%	49 18%	41 32%	0 0%
e	250 17%	28 10%	53 19%	61 12%	62 22%	46 36%	0 0%
TOTALS	1451 100%	273 100%	277 100%	497 100%	277 100%	127 100%	0 100%

QUESTION 9

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYST[illegible]	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	140 10%	19 7%	12 4%	58 12%	36 13%	15 11%	0 0%
b	180 12%	32 12%	30 11%	82 17%	20 7%	16 12%	0 0%
c	147 10%	22 8%	35 13%	53 11%	24 9%	13 10%	0 0%
d	129 9%	24 9%	28 10%	44 9%	20 7%	13 10%	0 0%
e	130 9%	31 11%	35 13%	37 7%	16 6%	11 8%	0 0%
f	727 50%	145 53%	137 49%	221 45%	161 58%	63 48%	0 0%
TOTALS	1453 100%	273 100%	277 100%	495 100%	277 100%	131 100%	0 100%

QUESTION 10

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	7 0%	0 0%	0 0%	1 0%	1 0%	5 4%	0 0%
b	215 15%	59 21%	55 20%	60 12%	31 11%	10 7%	0 0%
c	611 41%	139 49%	172 61%	218 44%	30 11%	52 37%	0 0%
d	370 25%	59 21%	47 17%	144 29%	84 30%	36 26%	0 0%
e	136 9%	15 5%	6 2%	44 9%	52 18%	19 14%	0 0%
f	72 5%	6 2%	1 0%	19 4%	40 14%	6 4%	0 0%
g	44 3%	2 1%	0 0%	8 2%	27 10%	7 5%	0 0%
h	27 2%	2 1%	0 0%	3 1%	18 6%	4 3%	0 0%
TOTALS	1482 100%	282 100%	281 100%	497 100%	283 100%	139 100%	0 100%

QUESTION 11

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	728 50%	131 48%	123 45%	215 44%	181 66%	78 59%	0 0%
b	726 50%	144 52%	153 55%	279 56%	95 34%	55 41%	0 0%
TOTALS	1454 100%	275 100%	276 100%	494 100%	276 100%	133 100%	0 100%

QUESTION 12

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	13	1%	2	1%	1	0%	4	1%	2	1%	4	3%	0	0%
b	126	9%	19	7%	10	4%	24	5%	53	19%	20	15%	0	0%
c	761	51%	159	56%	209	75%	257	52%	91	32%	45	33%	0	0%
d	578	39%	102	36%	60	21%	211	43%	137	48%	68	50%	0	0%
TOTALS	1478	100%	282	100%	280	100%	496	100%	283	100%	137	100%	0	100%

QUESTION 13

RESPONSE	OCLC AGGREGATE		SYRACUSE		OHIO STATE		OCLC SYSTEM		DALLAS PUBLIC		IOWA CITY PUBLIC		CASE WEST RESERVE	
a	166	18%	64	25%	47	17%	55	14%	0	0%	0	0%	0	0%
b	110	12%	30	12%	26	10%	54	13%	0	0%	0	0%	0	0%
c	97	10%	23	9%	12	4%	62	15%	0	0%	0	0%	0	0%
d	233	25%	53	21%	82	30%	98	24%	0	0%	0	0%	0	0%
e	48	5%	10	4%	17	6%	21	5%	0	0%	0	0%	0	0%
f	128	14%	34	13%	39	14%	55	14%	0	0%	0	0%	0	0%
g	79	8%	18	7%	33	12%	28	7%	0	0%	0	0%	0	0%
h	21	2%	10	4%	3	1%	8	2%	0	0%	0	0%	0	0%
i	27	3%	6	2%	6	2%	15	4%	0	0%	0	0%	0	0%
j	23	2%	10	4%	5	2%	8	2%	0	0%	0	0%	0	0%
TOTALS	932	100%	258	100%	270	100%	404	100%	0	100%	0	100%	0	100%

QUESTION 14

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	786 75%	207 72%	249 87%	330 69%	0 0%	0 0%	0 0%
b	50 5%	15 5%	12 4%	23 5%	0 0%	0 0%	0 0%
c	218 21%	66 23%	26 9%	126 26%	0 0%	0 0%	0 0%
TOTALS	1054 100%	288 100%	287 100%	479 100%	0 100%	0 100%	0 100%

QUESTION 15

RESPONSE	OCLC AGGREGATE	SYRACUSE	OHIO STATE	OCLC SYSTEM	DALLAS PUBLIC	IOWA CITY PUBLIC	CASE WEST RESERVE
a	242 26%	68 26%	90 33%	84 21%	0 0%	0 0%	0 0%
b	426 46%	103 40%	138 51%	185 46%	0 0%	0 0%	0 0%
c	111 12%	28 11%	20 7%	63 16%	0 0%	0 0%	0 0%
d	51 5%	11 4%	9 3%	31 8%	0 0%	0 0%	0 0%
e	21 2%	9 3%	6 2%	6 2%	0 0%	0 0%	0 0%
f	9 1%	4 2%	0 0%	5 1%	0 0%	0 0%	0 0%
g	7 1%	5 2%	1 0%	1 0%	0 0%	0 0%	0 0%
h	61 7%	32 12%	6 2%	23 6%	0 0%	0 0%	0 0%
TOTALS	928 100%	260 100%	270 100%	398 100%	0 100%	0 100%	0 100%

APPENDIX C

CLR-AGGREGATE OF PARTICIPATING LIBRARIES AND RESPECTIVE OPACS

OPAC Name	Participating Libraries	Investigated By:	Type of Library*
LIS	Case Western Reserve University	Online Computer Library Center (OCLC)	ARL
LSCAN	Dallas Public Library		PL
CLSI	Iowa City Public Library		PL
LCS	Ohio State University		ARL
SULIRS	Syracuse University		ARL
OCLC	Ohio University		Acad
OCLC	State Library of Ohio		FS
OCLC	University of Akron		Acad
OCLC	University of Texas at Austin		Acad
OCLC	University of Texas at Dallas		Acad
TLS	Claremont Colleges	J. Matthews and Associates (JMA)	Acad
CLSI	Evanston Public Library		PL
MSUS/PALS	Mankato State University		Acad
ULISYS	Mission College		CC
Maggie's Place	Pikes Peak Library District		PL
DataPhase	Stephen F. Austin State Univ.		Acad
ULISYS	West Valley College		CC
MUMS SCORPIO	Library of Congress	Library of Congress (LC)	FS
BRS	Dartmouth College	Research Libraries Group (RLG)	ARL
LUIS	Northwestern University		ARL
RLIN II	Stanford University		ARL
MELVYL	Includes UC campuses of Berkeley, Davis, Irvine, Los Angeles Riverside, San Diego, San Francisco, Santa Barbara, and Santa Cruz	University of California/ Division of Library Automation (UC/DLA)	

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*Key to Type of Library (TOL): ARL = Association of Research Libraries member; Acad = Academic library; CC = Community College; FS = Federal or State library; PL = Public library

APPENDIX D
CASE WESTERN RESERVE UNIVERSITY: USER QUESTIONNAIRE RESULTS

Background

Case Western Reserve University (CWRU) Libraries formally introduced the Library Information Service (LIS) to the university community in September 1982 as the libraries' online public access catalog which patrons could use as they used the card catalog in the libraries. LIS was linked to the OCLC system and accessed: (1) books published or reclassified by the CWRU Libraries since 1971; (2) all CWRU serials titles and serials holdings; and (3) library materials and their location at any of the approximately 3,500 participating OCLC libraries.

Search services to LIS were available from terminals in Sears, Freiberger and Kulas Music Libraries, from terminal clusters at Wickenden, Mather, and Carleton Commons, and from any terminal that could connect to the university's DECNET system. LIS was programmed on the CWRU campus computer center's DEC2060 and linked to the OCLC Online System in Dublin, Ohio.

There are three main differences between searching LIS and searching OCLC: (1) LIS transformed abbreviated OCLC messages, e.g., holding library symbols, MARC tags, etc., into their English-language equivalents; (2) LIS recognized a different command language; and (3) LIS permitted the user's entry of full names or title words and transformed them into derived search keys acceptable to the OCLC system. The principal known-item access points (author, title, author/title, and corporate name) were available to LIS searchers.

Questionnaire administration at CWRU began in early October 1982 and ended in January 1983. The user questionnaire was administered online. Of the 228 LIS users who encountered online questionnaires, 117 (51%) completed at least half of the questions in the online survey instrument. No nonuser questionnaires were distributed.

Demographic Background of LIS Users

Frequency of library visits by LIS users was on a daily-weekly basis, similar to the frequency of library visits at the other academic libraries surveyed, i.e., Ohio State, Syracuse, and four academic libraries where the OCLC system was the object of study (see Table 10). Eighty-seven percent of LIS users visited the university libraries on a daily or weekly basis (see Appendix A, question 48).

No clear pattern of the frequency of OPAC use by LIS users emerged. The percentages of responses listed below showed that none of the response categories contained a majority of responses. Because the sytem had been introduced in May 1982, just five months prior to online questionnaire administration, LIS users might not yet have established a consistent pattern of use.

User question 49. I use this computer catalog (N of cases = 117):

Every library visit	26%
Almost every visit	25%
Occasionally	29%
Rarely	7%
Not before today	13%

The sex of LIS users was overwhelmingly male; 63% of surveyed LIS users were male. The majority of OPAC users at other surveyed libraries was also male (see Table 13). The majority of LIS users (82%) was represented in three age groups ranging from 15 to 34 years old. The pattern of responses was most similar to the patterns at other academic libraries where online access to the local library's collections was provided, i.e., Syracuse and Ohio State (see Table 13). Since LIS was publicized as providing online access to the university libraries' collection rather than to the holdings of the approximatley 3,500 participating OCLC libraries, it was not surprising that the pattern of responses to the question on age matched the patterns at Syracuse and Ohio State rather than those at the four academic libraries where OCLC was the object of study.

The largest percentage of LIS users (45%) was undergraduates. Many were graduate students (25%). Once more, the pattern of responses by LIS users was similar to the pattern at Syracuse and Ohio State. The majority of OCLC users at academic libraries consisted of graduate students (see Table 19).

Given the number of response categories about academic area and the number of LIS users who completed online questionnaires, the percentages of LIS users categorized by their academic area showed that LIS users represented a variety of areas, but the small number of survey respondents precluded conclusions about these responses. It was not surprising that many LIS users (35%) were in the area of engineering, given the system's very recent implementation (see Appendix A, question 57).

LIS users frequently accessed a computer other than the library's computer catalog. Whereas approximately 36% of OPAC users at other surveyed libraries had never used another computer besides the library's computer catalog, only 19% of LIS users had never used another computer (see Table 68). The majority of LIS users (53%) used another computer on a daily or weekly basis, much more frequently than OPAC users at other libraries. CWRU library staff gave three reasons for the heavy use of computers by the university community: (1) university promotion of computer use through a type of incentive account; (2) completion of class assignments on the university's computer system; and (3) availability of LIS at terminals in locations other than the library.

Searching in LIS

Results of the question regarding the purpose of LIS users' searches were surprising because the pattern of responses was similar to patterns at the public libraries surveyed (see Tables 21, 22). Purposes connected with personal interest accounted for 44% of the responses by LIS users. OCLC or OPAC users at academic libraries were primarily using the online systems for course-related purposes. Because of the newness of LIS, the system's users might still have been "experimenting" with the system, i.e., trying the system's features, practicing their skills, seeing "how it works", rather than performing searches in connection with course work. Since LIS accessed library materials besides those in the university libraries, LIS users might also have been searching the system for all their library needs.

User question 4: I need this information for (N of responses = 427):

Personal interest	44%
Course-related purposes	27%
Advanced research	13%
Job-related purposes	16%

The main focus of LIS users' academic work was course work. Thirty-four percent of LIS users were involved in research (see Appendix A, question 58). The pattern of responses was similar to the patterns at Syracuse and Ohio State (see Table 24).

The type of information entered into LIS and OCLC was similar. 51% of LIS users entered author information, while 49% of OCLC users entered author information. The percentages of known-item information entered by LIS and OCLC users are listed below.

User question 3. I searched for what I wanted by:

	LIS (N of responses = 303)	OCLC (N of responses = 561)
A complete author's name	32.0%	32.6%
Part of an author's name	18.8%	16.9%
A complete title	30.0%	34.9%
Part of a title	19.2%	15.5%

A total of 49% of LIS users found all that they were looking for or more than they were looking for (see Appendix A, question 5). The largest percentage of LIS users (22%) in comparison to percentages at other libraries (see Table 26) found nothing they were looking for. This high percentage might have been due to LIS' inability to allow subject access to the CWRU Libraries' collections. The majority of LIS users (56%) also did not come across other things of interest in their most recent online search (see Appendix A, question 7), a finding which was similar to the experience of OCLC users and OPAC users at Syracuse (see Table 28).

LIS users consulted the library's traditional catalog frequently. The majority of LIS users (58%) consulted the traditional catalog on every or almost every library visit (see Appendix A, question 50). Users' responses about use of other catalogs at CWRU were similar to responses from OCLC users (see Table 30).

Transition from the Traditional Library Catalog to the OPAC

The majority of LIS users (84%) were favorable toward the online system. The interesting point about LIS users and their favorable attitudes was that the pattern of responses was most similar to the patterns of nonusers at surveyed academic and public libraries. Percentages of responses to the question about users' general attitude toward the OPAC are listed below for LIS users and OCLC users and nonusers. There was little difference between responses by LIS users and OCLC nonusers.

User question 9. My overall or general attitude toward the computer catalog is:

	OCLC Users (N of cases = 325)	OCLC Nonusers (N of cases = 481)	LIS Users (N of cases = 161)
Very favorable	75%	49%	46%
Somewhat favorable	21%	43%	38%
Somewhat unfavorable	3%	7%	9%
Very unfavorable	1%	1%	7%

LIS users' attitudes toward the online system might have been similar to responses of nonusers at other libraries because of the newness of the system. LIS users might not have had sufficient knowledge of the systems' capabilities nor sufficient searching experiences, which would make their attitudes similar to those of users of other online public access catalogs. The purpose of the majority of LIS users' searches (personal interest) helped support this interpretation of LIS users' attitudes, particularly if such personal interest purposes involved "experimentation." Questionnaire administration took place early in the introduction of LIS to the University Libraries in comparison to questionnaire administration at other surveyed libraries. Searchers of LIS were probably still experimenting with the system's capabilities; thus, their attitudes toward the online system had not yet been firmed up (see also Table 31).

In LIS users' comparison of the online system with the library's traditional catalog, the majority of respondents (55%) felt that the former was better than the latter. However, the percentage of LIS users who felt that the online system was better was smaller than results obtained at other libraries (see Table 44). For example, 76% of Ohio State users felt the OPAC was better than the libary's traditional catalog. The difference between LIS and other OPAC users' comparisons might again have been due to the limited experiences of LIS users with the CWRU Libraries' new OPAC.

The majority of LIS users (70%) expressed satisfaction with the results of their most recent OPAC search. The difference between responses by LIS and other OPAC users was that the latter reported a greater degree of satisfaction (see Table 40). Patterns of responses by OCLC and LIS users are listed below and show this difference.

User question 6. In relation to what I was looking for, the search was:

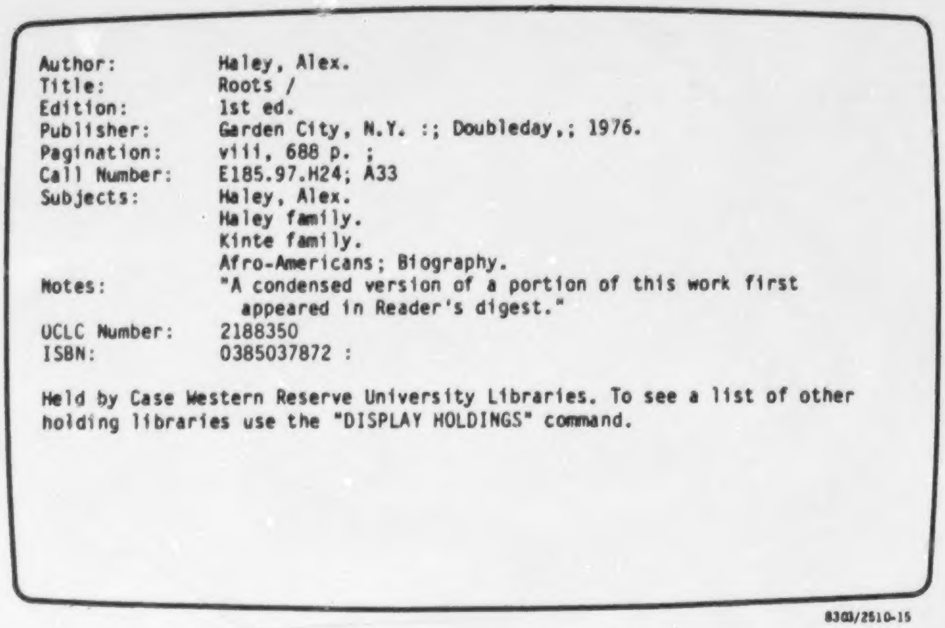
	OCLC Users (N of cases = 327)	LIS Users (N of cases = 157)
Very satisfactory	61%	39%
Somewhat satisfactory	26%	31%
Somewhat unsatisfactory	7%	15%
Very unsatisfactory	6%	15%

One possible reason for LIS users' dissatisfaction with the results of their most recent search might have been the system's inability to provide subject access to the local libraries' holdings and to scan the local libraries' holdings first. Since the libraries' traditional catalog allowed subject access to the libraries' collection, the fact that the new online system, which was publicized as a substitute for the traditional catalog, did not have one of the chief access points allowed in searching the traditional catalog could have been unsatisfactory to LIS users. Comparatively higher levels of satisfaction were expressed by OCLC users because they had subject access to their libraries' holdings through the traditional catalog, and the OCLC system was not promoted in OCLC-system libraries as a substitute for the traditional catalog or as an online public access catalog.

Users' Favorable Experiences with LIS Features

Similar to the experiences of other OPAC users, LIS users reported favorable experiences with author, title, and author/title searches. For a discussion about why OPAC users felt known-item searches were easy, see section 6.2.1.

LIS users had favorable experiences understanding single bibliographic record displays. LIS "translated" MARC tags listed in OCLC bibliographic record displays into their English-language equivalents and prefaced fields of displayed records with the full Engligh-language field name. The following is an example of a full bibliographic record in LIS. Brief level bibliographic records also contained field names.



```
Author:          Haley, Alex.
Title:           Roots /
Edition:         1st ed.
Publisher:       Garden City, N.Y. :; Doubleday,; 1976.
Pagination:      viii, 688 p. ;
Call Number:     E185.97.H24; A33
Subjects:        Haley, Alex.
                 Haley family.
                 Kinte family.
                 Afro-Americans; Biography.
Notes:           "A condensed version of a portion of this work first
                   appeared in Reader's digest."
OCLC Number:     2188350
ISBN:            0385037872 :

Held by Case Western Reserve University Libraries. To see a list of other
holding libraries use the "DISPLAY HOLDINGS" command.
```

Figure 25. LIS Full Bibliographic Record

LIS displays of holding libraries in the Cleveland metropolitan area detailed the full name of individual libraries rather than the three-character OCLC holding symbol.

LIS users noted that they did not have difficulty using codes or abbreviations for searching. LIS display commands were composed of a single character, i.e., D for display, which prefaced the object of the command, e.g., (display) holdings, (display) previous-screen, etc. LIS search commands were composed of three characters, i.e., SEA for search, which preceded the abbreviation for the type of search, e.g., A for author/title, T for title, and the searchable information, i.e., author/title information, title information, etc. LIS searchers did not have to remember the number of characters which made up OCLC derived search keys because LIS would automatically create the derived search key from the users' input information. Other abbreviations or codes required for searching were general instructions on how to use the terminal, e.g., stop or interrupt screen displays, resume displays, delete characters, etc., which conformed to the regular operation of the terminal. Since the majority of LIS users were users of another computer (most likely the university's DECNET system), they were probably familiar with the regular operation of the terminal. LIS users also reported very favorable experiences with the staff assistance.

Users' Unfavorable Experiences with LIS Features

When reviewing LIS users' unfavorable experiences with features, it must be kept in mind that the sytem's designers were constrained by the features available in the OCLC system and by problems precipitated by the linking of the university's computer and the OCLC system. LLS users reported unfavorable experiences with the following seven features:

1. Knowing what is included in the computer catalog
2. Understanding explanations on the screen
3. Rate at which the computer responds
4. Entering commands during the search process
5. Time taken when selecting from a list of choices
6. Scanning through a long display (forward or backward)
7. Remembering commands in the middle of the search

All OPAC users reported difficulty knowing what was included in the computer catalog. Suggestions were given to help OPAC users (see section 6.3.7). Users' difficulty understanding screen explanations could have referred to LIS' error messages, help screens, directive prompts, or initial screen instructions (which were the OCLC sign-on message).

LIS users, like OCLC users, responded negatively about the system's response time. LIS users were probably particularly aware of response time because there were two computer systems, i.e., OCLC and CWRU, involved in online messages and transactions. LIS users' difficulty entering commands when they wanted to during the search process might have been compounded by slow response times.

Four of the seven unfavorable experiences, i.e., entering commands, selecting from a list of choices, scanning forward or backward in displays, and remembering commands, were related to output control. Future enhancements of LIS should involve simplifications in the manipulation of screen displays. Perhaps a list of possible user actions following screen displays rather than the present single directive prompt would be more helpful to LIS users.

The five top-ranked improvements to LIS features are: (1) ability to know if a book is checked out; (2) searching by any word(s) in a subject heading; (3) ability to print search results; (4) providing step by step instructions; (5) ability to know where a book is located in the library.

The second-ranked improvement, i.e., subject search, was a capability that users already had in traditional library catalog searching. Other top-ranked improvements, i.e., ability to know if a book is checked out, printout of search results, book's location in the library, would streamline users' tasks of locating particular books.

The five top-ranked materials that users wanted added to LIS were similar to the ranked lists at other academic libraries (see Table 56 and section 6.4) and were: (1) more of the library's older books; (2) journal or magazine titles; (3) dissertations; (4) government publications; (5) technical reports.

The four top-ranked LIS service improvements were also not very different from the results at other libraries (see Table 55). LIS users wanted more terminals in general and more terminals in locations other than near the libraries' traditional catalog. The four top-ranked LIS service improvements are: (1) more terminals; (2) a chart of commands posted at the terminal; (3) terminals at places other than library buildings; (4) terminals at locations other than near the card catalog.

User Assistance for Searching in LIS

Nearly half of LIS users responding to the survey first heard about LIS by noticing a terminal in the library. Library staff were also mentioned by a large percentage of LIS users (21%) as first introducing them to the computer catalog.

User question 52. I first heard about this computer catalog from (N of cases = 115):

Noticing a terminal in the library	49%
Library tour, orientation or demonstration	14%
An article or written announcement	9%
A course instructor	3%
A friend or family member	4%
Library staff	21%

LIS users first learned how to use the system from a variety of sources, of which printed instructions was reported by the largest percentage of users.

User question 53. I learned how to use this computer catalog (N of responses = 250):

From a friend or someone at a nearby terminal	7%
Using printed instructions	29%
Using instructions on the terminal screen	17%
From the library staff	17%
From a library course or orientation	7%
From a slide/tape/cassette program	2%
By myself without any help	21%

Most LIS users relied on printed instructions to assist them in their most recent search. A surprisingly large number of respondents either used the instructions on the terminal screen or sought no help at all; possible reasons for this finding were that a large percentage of surveyed users had engineering background (35%) and/or frequently used other computer systems (53%).

User question 8. I got help in doing this computer catalog search from (N of responses = 260):

Printed material or signs	32%
Instructions on the terminal screen	21%
Library staff member	17%
Person nearby	6%
I did not get help	24%

LIS users ranked a chart of commands posted at the terminal second among LIS service improvements. The implementation of step-by-step directions into the LIS interface was ranked fourth among additional features.